Changes for the Better

MITSUBISHI ELECTRIC

MITSUBISHI CNC
DRIVE SYSTEM

DATA BOOK

MDS-D Series
MDS-DH Series
MDS-DM Series
MDS-D-SVJ3/SPJ3 Series

IB-1500273(ENG)-N

本製品の取扱いについて

(日本語 /Japanese)
本製品は工業用 (クラス A) 電磁環境適合機器です。販売者あるいは使用者はこの点に注意し、住商業環境以外での使用をお願いいたします。

Handling of our product

(English)
This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

본 제품의 취급에 대해서

(한국어 /Korean)
이 기기는 업무용 (A 급) 전자파적합기기로서 판매자 또는 사용자는 이 점을 주의하시기 바라며 가정외의 지역에서 사용하는 것을 목적으로 합니다 .

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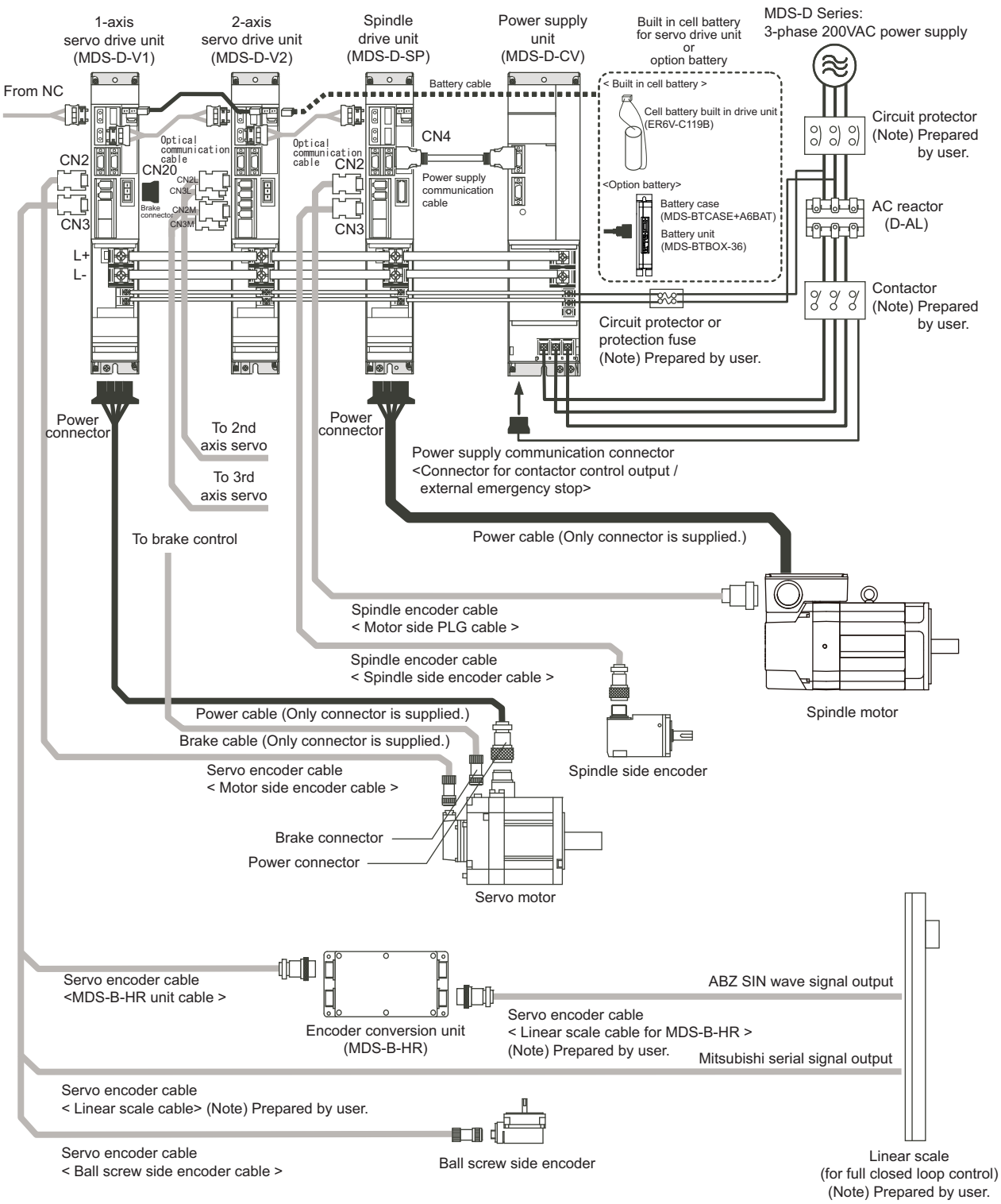
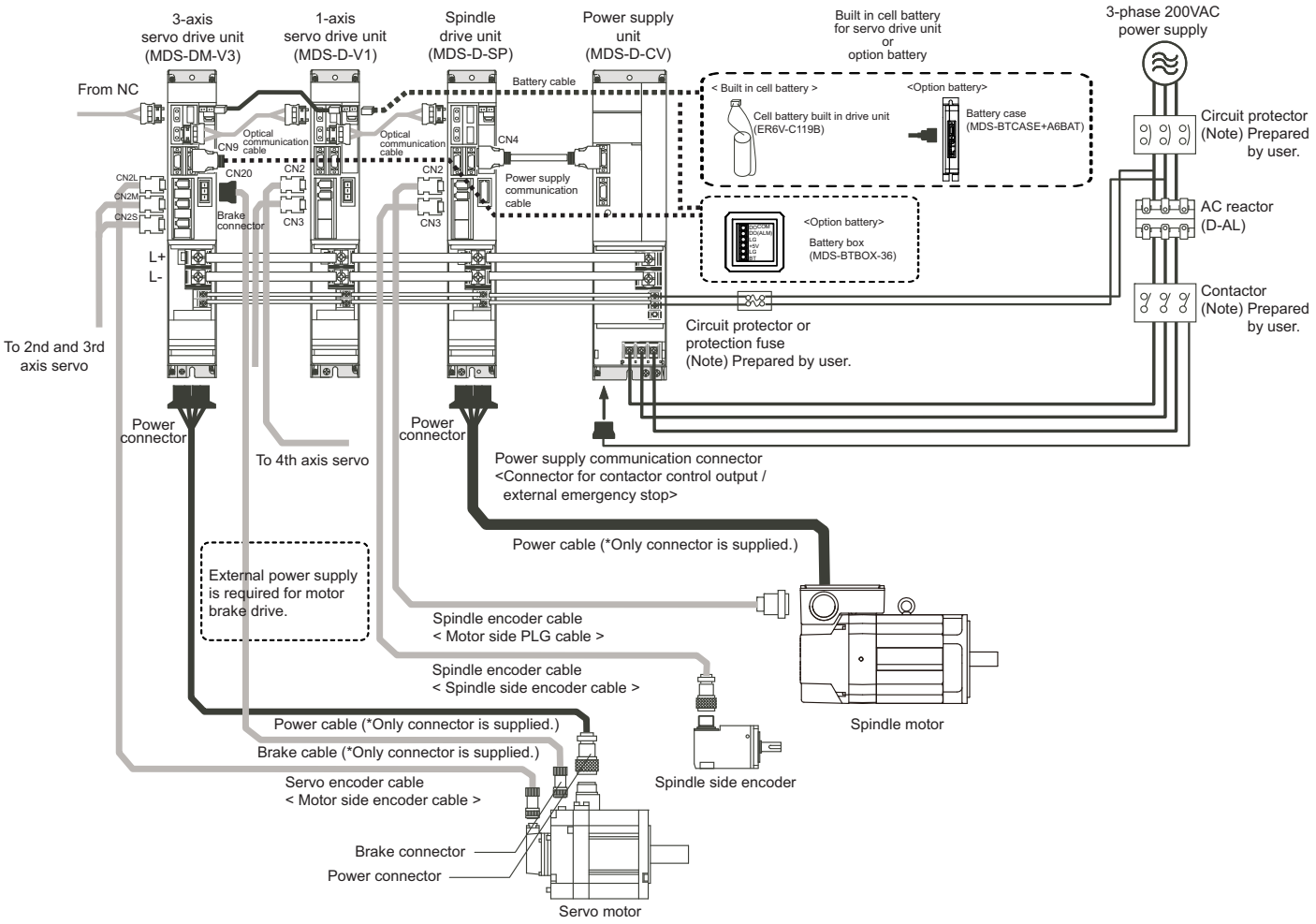
System configuration

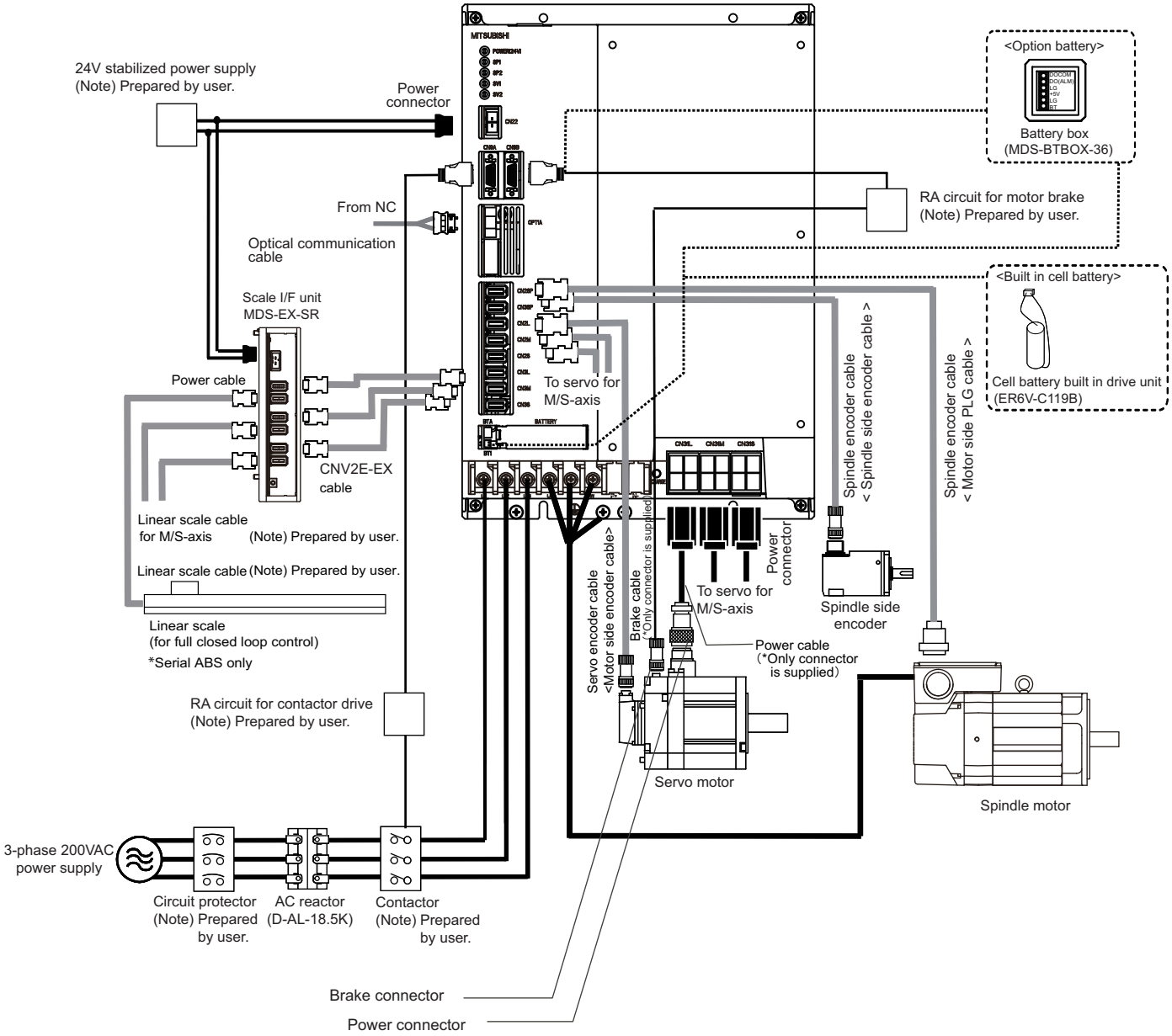
<MDS-D Series>



<MDS-DM-V3 Series>



<MDS-DM-SPV Series>



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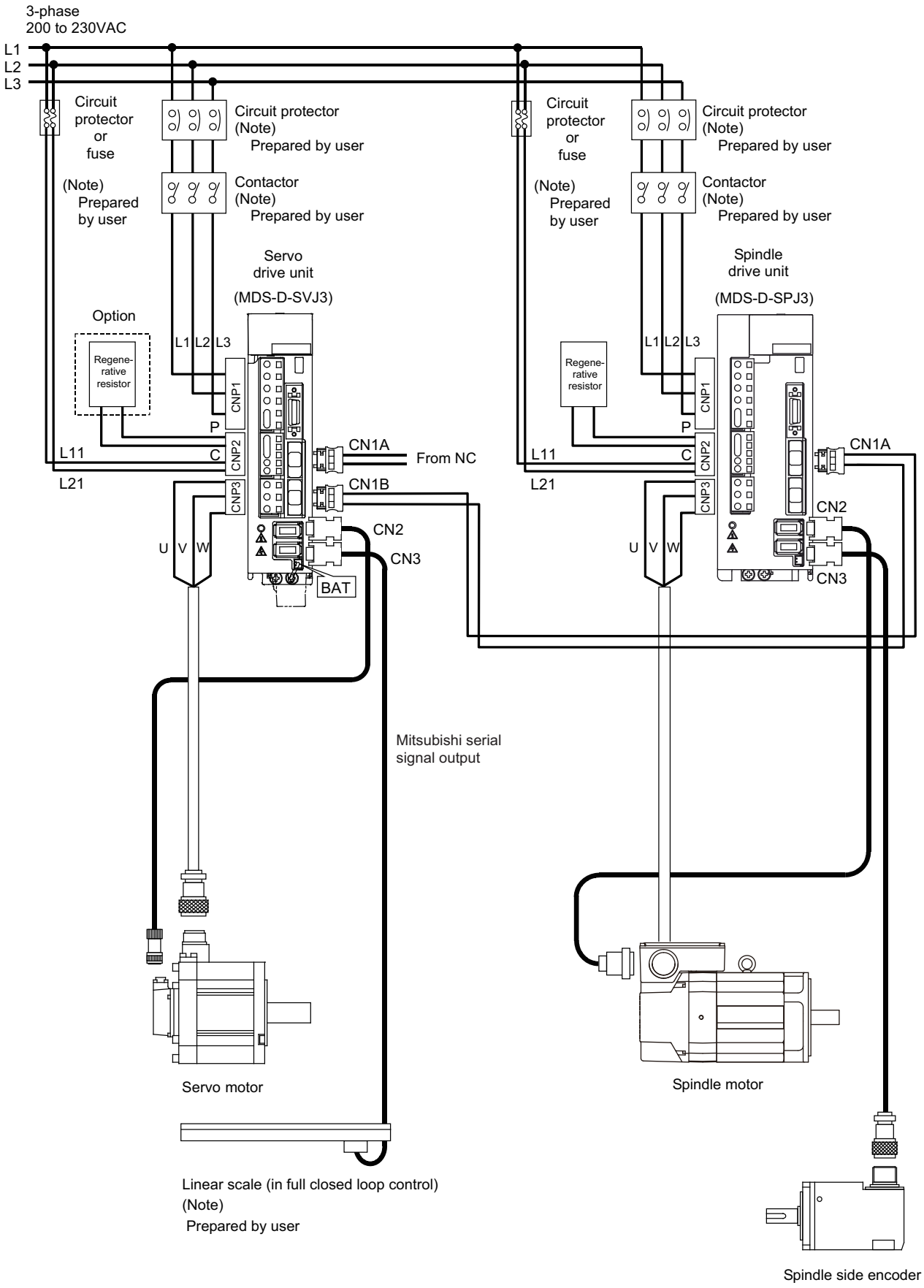


Explanation of type

1. Servo motor type

< HF Series >

HF (1) (2) (3) - (4)

(1) Rated output · Maximum rotation speed

Symbol	Rated output	Maximum rotation speed	Flange size (mm)
75	0.75 kW	5000 r/min	90 SQ.
105	1.0 kW	5000 r/min	90 SQ.
54	0.5 kW	4000 r/min	130 SQ.
104	1.0 kW	4000 r/min	130 SQ.
154	1.5 kW	4000 r/min	130 SQ.
224	2.2 kW	4000 r/min	130 SQ.
204	2.0 kW	4000 r/min	176 SQ.
354	3.5 kW	4000 r/min	176 SQ.
123	1.2 kW	3000 r/min	130 SQ.
223	2.2 kW	3000 r/min	130 SQ.
303	3.0 kW	3000 r/min	176 SQ.
453	4.5 kW	3500 r/min	176 SQ.
703	7.0 kW	3000 r/min	176 SQ.
903	9.0 kW	3000 r/min	204 SQ.
142	1.4 kW	2000 r/min	130 SQ.
302	3.0 kW	2000 r/min	176 SQ.

(3) Shaft end structure

Symbol	Shaft end structure
S	Straight
T	Taper

(Note) "Taper" is available for the motor w hose flange size is 90 SQ. mm or 130 SQ. mm.

(2) Magnetic brake

Symbol	Magnetic brake
None	None
B	With magnetic brakes

(4) Encoder

Symbol	Type	Detection method	Resolution
A48	OSA18-100	Absolute position	260,000 p/rev
A51	OSA105S5A		1,000,000 p/rev
A74N	OSA166S5NA		16,000,000 p/rev

< HP Series >

HP (1) (2) (3) – (4)

(1) Rated output · Maximum rotation speed

Symbol	Rated output	Maximum rotation speed	Flange size (mm)
54	0.5 kW	4000 r/min	130 SQ.
104	1.0 kW	4000 r/min	130 SQ.
154	1.5 kW	4000 r/min	130 SQ.
224	2.2 kW	4000 r/min	130 SQ.
204	2.0 kW	4000 r/min	180 SQ.
354	3.5 kW	4000 r/min	180 SQ.
454	4.5 kW	4000 r/min	180 SQ.
704	7.0 kW	4000 r/min	180 SQ.
903	9.0 kW	3000 r/min	220 SQ.
1103	11.0 kW	3000 r/min	220 SQ.

(3) Shaft end structure

Symbol	Shaft end structure
S	Straight
T	Taper

(Note) "Taper" is available for the motor w hose flange size is 130 SQ. mm.

(2) Magnetic brake

Symbol	Magnetic brake
None	None
B	With magnetic brake

(4) Encoder

Symbol	Type	Detection method	Resolution
A48	OSA18-100	Absolute position	260,000 p/rev
A51	OSA105S5A		1,000,000 p/rev
A74N	OSA166S5NA		16,000,000 p/rev

< HF-KP Series >

HF-KP 13 (1) J-S17

Rated output · Maximum rotation speed

Symbol	Rated output	Maximum rotation speed	Flange size (mm)
13	0.1 kW	6000 r/min	40 SQ.

(1) Magnetic brake

Symbol	Magnetic brake
None	None
B	With magnetic brakes

(Note) The motor-end encoder has absolute position specifications, but is not equipped w ith the capacitor for data backup. Thus, absolute position is lost immediately after disconnection of the encoder cable.

HF-KP (1) (2) JW04-S6

(1) Rated output · Maximum rotation speed

Symbol	Rated output	Maximum rotation speed	Flange size (mm)
23	0.2 kW	6000 r/min	60 SQ.
43	0.4 kW	6000 r/min	60 SQ.
73	0.75 kW	6000 r/min	80 SQ.

(2) Magnetic brake

Symbol	Magnetic brake
None	None
B	With magnetic brake

2. Direct-drive motor type

TM-RB Series

< Primary side (coil side) >

TM-RBP (1) (2) (3)

(1) Rated torque

Symbol	Rated torque
012	12 N·m
036	36 N·m
048	48 N·m
105	105 N·m
150	150 N·m
340	340 N·m
500	500 N·m

(2) Stator dimensions

Symbol	Dimension
C	DIA 130 mm
E	DIA 180 mm
G	DIA 230 mm
J	DIA 330 mm

(3) Rated rotation speed

Symbol	Rotation speed
10	100 r/min
20	200 r/min

(Note 1) This explains the model name system of direct-drive motors, but does not mean all the combinations are available.
(Note 2) The primary and secondary sides having the same variable part of the name are combined to form a direct-drive motor.

< Secondary side (magnet side) >

TM-RBS (1) (2) (3)

(1) Rated torque

Symbol	Rated torque
012	12 N·m
036	36 N·m
048	48 N·m
105	105 N·m
150	150 N·m
340	340 N·m
500	500 N·m

(2) Stator dimensions

Symbol	Dimension
C	DIA 130 mm
E	DIA 180 mm
G	DIA 230 mm
J	DIA 330 mm

(3) Rated rotation speed

Symbol	Rotation speed
10	100 r/min
20	200 r/min

(Note 1) This explains the model name system of direct-drive motors, but does not mean all the combinations are available.
(Note 2) The primary and secondary sides having the same variable part of the name are combined to form a direct-drive motor.

3. Linear servo motor type

LM-F Series

< Primary side: Coil >

LM - FP (1) (2) - (3) M - 1WW0

(2) Length

Symbol	Length
A	170mm
B	290mm
D	530mm
F	770mm
H	1010mm

Maximum speed

Symbol	Maximum speed
M	2.0m/s

(3) Rated thrust

Symbol	Rated thrust
03	300N
06	600N
12	1200N
18	1800N
24	2400N
36	3600N
48	4800N

(1) Width

Symbol	Width
2	120mm
4	200mm

< Secondary side: Magnet >

LM - FS (1) 0 - (2) - 1WW0

(2) Length

Symbol	Length
384	384mm
480	480mm
576	576mm

(1) Width

Symbol	Width
2	120mm
4	200mm

(Note 1) The linear dimension of 384mm is available for LM-FS20 only.

(Note 2) This explains the model name system of linear motors, but does not mean all the combinations are available.

4. Servo drive unit type

(1) 1-axis servo drive unit

MDS-D- (1)

(1) Unit Type MDS-D	Unit width	Compatible motor type / Unit nominal maximum current / Stall torque (N·m)	HF□ 75	105	54	104	154	224	204	354	123	223	303	453	703	903	142	302	HP□ 54	104	154	224	204	354	454	704	903	1103	HF-KP□ 23	43	73
			2.0	3.0	2.9	5.9	9.0	12.0	13.7	22.5	7.0	12.0	22.5	37.2	49.0	58.8	11.0	20.0	3.0	5.9	9.0	12.0	13.7	22.5	31.9	49.0	70.0	110.0	0.64	1.3	2.4
V1-20	60mm	20A	●	●							●						●												●	●	●
V1-40		40A			●	●						●						●	●	●											
V1-80		80A					●	●	●				●								●	●	●								
V1-160		160A								●				●										●	●						
V1-160W	90mm	160A													●											●					
V1-320	120mm	320A														●											●				
V1-320W	150mm	320A																										●			

● Indicates the compatible motor for each servo drive unit.

CAUTION ! The dynamic brake unit (MDS-D-DBU) is required for the MDS-D-V1-320W.

MDS-D-SVJ3- (1)

(1) Unit Type MDS-D-SVJ3-	Unit width	Compatible motor type / Rated output / Stall torque (N·m)	HF□ 75	105	54	104	154	224	204	354	123	223	303	142	302	HF-KP□ 13	23	43	73
			2.0	3.0	2.9	5.9	9.0	12.0	13.7	22.5	7.0	12.0	22.5	11.0	20.0	0.32	0.64	1.3	2.4
03/03NA	40mm	0.3kW														●	●		
04/04NA	40mm	0.4kW																●	
07/07NA	60mm	0.75kW	●	●	●														●
10/10NA	90mm	1.0kW				●					●	●		●	●				
20/20NA	90mm	2.0kW					●	●	●				●						
35/35NA	90mm	3.5kW								●									

● Indicates the compatible motor for each servo drive unit.

(2) 2-axis servo drive unit

MDS-D- (1)

(1) Unit Type MDS-D	Unit width	Unit nominal maximum current	Compatible motor type / Axis / Stall torque (N·m)	HF□ 75	105	54	104	154	224	204	354	123	223	303	453	703	903	142	302	HP□ 54	104	154	224	204	354	454	704	903	1103	HF-KP□ 23	43	73
				2.0	3.0	2.9	5.9	9.0	12.0	13.7	22.5	7.0	12.0	22.5	37.2	49.0	58.8	11.0	20.0	3.0	5.9	9.0	12.0	13.7	22.5	31.9	49.0	70.0	110.0	0.64	1.3	2.4
V2-2020	60mm	20+20A	LM	●	●							●						●												●	●	●
V2-4020		40+20A	L			●	●						●							●	●	●										
			M	●	●							●						●												●	●	●
V2-4040		40+40A	LM			●	●						●							●	●	●										
V2-8040		80+40A	L					●	●	●				●									●	●	●								
			M			●	●						●							●	●	●										
V2-8080		80+80A	LM					●	●	●				●									●	●	●								
V2-16080	90mm	160+80A	L								●				●											●	●					
			M					●	●	●				●									●	●	●								
V2-160160		160+160A	LM								●				●											●	●					
V2-160160W	120mm	160+160A	LM								●				●	●										●	●	●				

● Indicates the compatible motor for each servo drive unit.

(3) 3-axis servo drive unit

MDS-DM- (1)

(1) Unit Type MDS-DM-	Unit width	Unit nominal maximum current	Compatible motor type / Axis / Stall torque (N·m)	HF□ 75	105	54	104	154	123	223	142	302	HF-KP□ 23	43	73
				2.0	3.0	2.9	5.9	7.0	7.0	12 (10.0)	11.0	20 (15.6)	0.64	1.3	5.1
V3-202020	60mm	20+20+20A	L	●	●				●		●		●	●	●
			M	●	●				●		●		●	●	●
			S	●	●				●		●		●	●	●
V3-404040		40+40+40A	L	●	●	●	●	□	●	●	●	●			
			M	●	●	●	●	□	●	○	●	○			
			S	●	●	●	●	□	●	○	●	○			

● Indicates the compatible motor for each servo drive unit.
○ Indicates the motor that can be combine with the drive unit although the stall torque is limited.
□ Indicates the motor that can be combine with the drive unit although the stall torque and maximum torque are limited.
(Note) The values in the parentheses are specifications when connecting with the M/S-axis of the MDS-DM-V3-404040.

5. Multi axis integrated drive unit

MDS-DM- **(1)**

(1) Unit Type MDS-DM-	Unit width	Unit nominal maximum current	Compatible motor type / Stall torque (N·m) / Axis	HF□ 54	104	154	224	204	354	223	303	453	302
				2.9	5.9	9.0	12.0	13.7	22.5	12.0	22.5	37.2	20.0
SPV3/SPV3F-10080	260mm	80+80+80A	LMS	●	●	●	●	●		●	●		●
SPV3/SPV3F-16080		80+80+80A	LMS	●	●	●	●	●		●	●		●
SPV3/SPV3F-20080		80+80+80A	LMS	●	●	●	●	●		●	●		●
SPV3F-200120		120+120+120A	LMS			●	●	●	●		●	●	
SPV2F-10080		80+80A	LM	●	●	●	●	●		●	●		●
SPV2F-16080		80+80A	LM	●	●	●	●	●		●	●		●
SPV2F-20080		80+80A	LM	●	●	●	●	●		●	●		●

● Indicates the compatible motor for each servo drive unit.

6. Spindle motor type

< SJ-V/VL Series >

SJ- (1) (2) (3) (4) – (5) (6) T

(1) Motor series

Symbol	Motor series
V	Medium-inertia series
VL	Low-inertia series

(2) Coil changeover

Symbol	Coil changeover
None	Unavailable
K	Available

(3) Shaft configuration

Symbol	Axis configuration
None	Standard
S	Hollow shaft

(4) Short time rated output (For normal specification)

Symbol	Short time rated output
0.75	0.75 kW
1.5	1.5 kW
2.2	2.2 kW
3.7	3.7 kW
5.5	5.5 kW
7.5	7.5 kW
11	11 kW
15	15 kW
18.5	18.5 kW
22	22 kW
26	26 kW
30	30 kW
37	37 kW
45	45 kW
55	55 kW

For MDS-D2/DM2 motor

(5) Specification code
The SJ-V/VL Series is indicated with a specification code (01 to 99).

(6) Special specification

Symbol	Special specification
None	Standard
Z	High-speed bearing
FZ	High-speed bearing front-lock

(Note) This explains the model name system of spindle motors, but does not mean all the combinations are available.

< IPM spindle motor Series >

SJ-PMF (1) (2) T- (3)

(1) 30-minute rated torque

Symbol	30-minute rated torque
018	17.5 N·m
035	35.0 N·m

(2) Base speed

Symbol	Base speed
30	3000 r/min

(3) Specification code (00)

(Note 1) The built-in IPM spindle motor is available by special order.
(Note 2) This explains the model name system of a spindle motor, and all combinations of motor types listed above do not exist.

< SJ-D Series >

SJ-D (1) (2) / (3) – (4) (5) – (6)

(1) Motor series

Symbol	Motor Series
None	Standard
J	Compact & lightweight specifications

(2) Short time (or %ED) rated output

Symbol	Short-time rated output
3.7	3.7kW
5.5	5.5kW
7.5	7.5kW
11	11kW
15	15kW

(3) Maximum rotation speed
Indicates the hundreds place and higher order digits.

(4) Specification code
Indicates a specification code (01 to 99).

(5) Encoder

Symbol	Type
None	Type 1
T	Type 2

(6) Option (Note)

Symbol	Option
None	Standard (flange type, without oil seal, without key, coil changeover unavailable, air-cooling, solid shaft)
C	With key
J	Oil seal
X	Reversed cooling air

(Note) If more than one option is included, the symbols are in alphabetical order.

(Note) This explains the model name system of spindle motors, but does not mean all the combinations are available.

7. Built-in spindle motor type

(1) Built-in IM spindle motor
< SJ-B Series >

SJ- (1) B (2) (3) (4) (5) (6)

(1) Voltage

Symbol	Voltage
2	200V
4	400V

*400V is available by special order.

(2) Number of poles

Symbol	Number of poles
2	2 poles
4	4 poles
6	6 poles

(3) Motor size
Stator outline (frame No.) is indicated with 0 to 9, A, B.

Symbol	Stator outline
0	ϕ 110
1	ϕ 128
2	ϕ 160
3	ϕ 180
4	ϕ 210
5	ϕ 230
6	ϕ 255
7	ϕ 300
9	ϕ 370
A	ϕ 90
B	ϕ 115

(4) Specification code
Specification code (01 to 99)

(5) Overheat protection sensor

Symbol	Overheat protection sensor
T	Thermistor

(6) Coil changeover

Symbol	Coil changeover
None	Unavailable
D	Available (Δ-2//Δ)
K	Available (人 -Δ)

(2) Built-in IPM spindle motor
< SJ-PMB Series >

SJ- (1) PMB (2) (3) (4) – (5)

(1) Voltage

Symbol	Voltage
None	200V
4	400V

*400V is available by special order.

(2) Continuous rated torque
Indicates with 3 digits.
For 1000 [N・m] or more (for 9999 [N・m] or less), the upper digit is indicated by alphabetic character and the others are indicated by the carried number.
Example) 020 : 20 [N・m]
A55 : 1550 [N・m]

(3) Base rotation speed
Indicates the thousands and the hundreds places (the ten places are rounded off.)
Example) 03 : 250 to 349 [r/min]
15 : 1450 to 1549 [r/min]

(4) Overheat protection sensor

Symbol	Overheat protection sensor
T	Thermistor

(5) Design management No.
Indicates with 2 digits number or alphabetic characters
Example) 00, A1

CAUTION ! Check the rating table to see whether the coil changeover specification (人- 人 connection, Δ-2// Δconnection) is included or not.

8. Tool spindle motor type

< HF-KP Series >

HF-KP (1) J (2) W09

(1) Rated output and maximum rotation spee

Symbol	Rated output	Maximum rotation speed	Flange size (mm)
46	0.4 kW	6000 r/min	60 SQ.
56	0.5 kW	6000 r/min	60 SQ.
96	0.9 kW	6000 r/min	80 SQ.

(2) Option

Symbol	Option
None	Without keyw ay
K	With keyw ay (w ith key)

< HF-SP Series >

HF-SP (1) J (2) W09

(1) Rated output and maximum rotation speed

Symbol	Rated output	Maximum rotation speed	Flange size (mm)
226	2.2kW	6000 r/min	130 SQ.
406	4.0kW	6000 r/min	130 SQ.

(2) Option

Symbol	Option
None	Without keyw ay
K	With keyw ay (w ithout key)

< HF Series >

HF (1) (2) - (3)

(1) Rated output · Maximum rotation speed

Symbol	Rated output	Maximum rotation speed	Flange size (mm)
75	0.75 kW	4000 r/min	90 SQ.
105	1.0 kW	4000 r/min	90 SQ.
54	0.5 kW	3000 r/min	130 SQ.
104	1.0 kW	3000 r/min	130 SQ.
154	1.5 kW	3000 r/min	130 SQ.
224	2.2 kW	3000 r/min	130 SQ.
204	2.0 kW	3000 r/min	176 SQ.
354	3.5 kW	3000 r/min	176 SQ.
453	4.5 kW	3000 r/min	176 SQ.
703	7.0 kW	3000 r/min	176 SQ.
903	9.0 kW	3000 r/min	204 SQ.

(2) Shaft end structure

Symbol	Shaft end structure
S	Straight

(3) Encoder

Symbol	Type	Resolution
A48	OSA18-100	260,000 p/rev

(Note) Encoder A51 and A74N can not be used with the tool spindle motor.

< Combination with spindle drive unit >

(a) 1-axis spindle drive unit

Unit Type MDS-D-	Unit width	Compatible motor type: Rated torque (N·m) / Rated output	HF□ 75	105	54	104	154	224	204	354	123	223	303	453	703	903	HF-KP□ 46	56	96	HF-SP□ 226	406
			1.8	2.4	1.6	3.2	4.8	7.0	6.4	11.1	5.7	10.5	14.3	37.2	49.0	58.8	0.64	0.8	1.43	3.5	6.37
SP-20	60mm	20 A	●	●							●						●	●	●		
SP-40		40 A			●	●						●									
SP-80		80 A					●	●	●				●							●	
SP-160	90mm	160 A								●				●	●						●
SP-200	120mm	200 A																			
SP-240	150mm	240 A																			
SP-320		320 A														●					
SP-400	240mm	400 A																			
SP-640	300mm	640 A																			

● Indicates the compatible motor for each spindle drive unit.

Unit Type MDS-D-SPJ3-	Unit width	Compatible motor type: Rated torque (N·m) / Rated output	HF□ 75	105	54	104	154	224	204	123	223	303	HF-KP□ 46	56	96
			1.8	2.4	1.6	3.2	4.8	7.0	6.4	5.7	10.5	14.3	0.64	0.8	1.4
075/075NA	60mm	0.75kW	●	●	●					●			●	●	●
22/22NA	90mm	2.2kW				●					●				
37/37NA		3.7kW					●	●	●			●			
55/55NA	130mm	5.5kW													
75/75NA		7.5kW													
110/110NA	172mm	11.0kW													

● Indicates the compatible motor for each spindle drive unit.

(b) 2-axis spindle drive unit

Unit Type MDS-D-	Unit width	Rated output	Compatible motor type: Rated torque (N·m) / Axis	HF□ 75	105	54	104	154	224	204	354	123	223	303	453	703	HF-KP□ 46	56	96	HF-SP□ 226	406
				1.8	2.4	1.6	3.2	4.8	7.0	6.4	22.5	5.7	10.5	14.3	14.3	22.3	0.64	0.8	1.43	3.5	6.37
SP2-2020	60mm	20+20A	LM	●	●							●					●	●	●		
SP2-4020		40+20A	L			●	●						●								
			M	●	●							●					●	●	●		
SP2-4040S		40+40A	LM			●	●						●								
SP2-4040	90mm	40+40A	LM			●	●						●								
SP2-8040		80+40A	L					●	●	●				●						●	
			M			●	●						●								
SP2-16080S		160+80A	L								●				●	●					●
			M					●	●	●				●						●	
SP2-8080	120mm	80+80A	LM					●	●	●				●						●	
SP2-16080		160+80A	L								●				●	●					●
			M					●	●	●				●						●	

● Indicates the compatible motor for each spindle drive unit.

(Note) A 2-axis spindle drive unit (MDS-D-SP2) drives tw o tool spindle motors only. A spindle motor other than tool spindle motor is not usable.

9. Spindle drive unit type

<1-axis spindle drive unit>

MDS-D- (1)

(1) Capacity

Symbol	Nominal maximum current	Unit w idth
SP-20	20 A	60mm w ide
SP-40	40 A	
SP-80	80 A	
SP-160	160 A	90mm w ide
SP-200	200 A	120mm w ide
SP-240	240 A	150mm w ide (Note)
SP-320	320 A	
SP-400	400 A	240mm w ide (Note)
SP-640	640 A	300mm w ide (Note)

(Note) DC connection bar is required. Alw ays install a large capacity drive unit in the left side of pow er supply unit, and connect w ith DC connection bar.

MDS-D-SPJ3- (1)

(1) Capacity

Symbol	Rated output	Unit w idth
075/075NA	0.75kW	60mm w ide
22/22NA	2.2kW	90mm w ide
37/37NA	3.7kW	
55/55NA	5.5kW	130mm w ide
75/75NA	7.5kW	
110/110NA	11.0kW	172mm w ide

<2-axis spindle drive unit>

MDS-D- (1)

(1) Capacity

Symbol	Nominal maximum current	Unit w idth
SP2-2020	20+20 A	60mm w ide
SP2-4020	40+20 A	
SP2-4040S	40+40 A	
SP2-4040	40+40 A	90mm w ide
SP2-8040	80+40 A	
SP2-16080S	160+80 A	
SP2-8080	80+80 A	120mm w ide
SP2-16080	160+80 A	

10. Power supply unit type

MDS-D- (1)

Power supply unit				Compatible AC reactor	Compatible contactor (Mitsubishi) (Note 1)	Compatible circuit protector (Mitsubishi) (Note 1)
(1) Type MDS-D-	30-minute rated output	Continuous rated output	Unit width			
CV-37	3.7kW	2.2kW	60mm wide	D-AL-7.5K	S-T12-AC200V	NF63-CW3P-20A
CV-75	7.5kW	5.5kW			S-T35-AC200V	NF63-CW3P-40A
CV-110	11.0kW	7.5kW	90mm wide	D-AL-11K		NF63-CW3P-50A
CV-185	18.5kW	15.0kW		D-AL-18.5K	S-T65-AC200V	NF125-CW3P-100A
CV-300	30.0kW	26.0kW	150mm wide (Note 2)	D-AL-30K	S-T80-AC200V	NF250-CW3P-125A
CV-370	37.0kW	30.0kW		D-AL-37K	S-N150-AC200V	NF250-CW3P-175A
CV-450	45.0kW	37.0kW		D-AL-45K		NF250-CW3P-200A
CV-550	55.0kW	45.0kW	300mm wide (Note 2)	D-AL-55K	S-N180-AC200V	NF250-CW3P-225A

(Note 1) This is an optional part, and must be prepared by the user.
(Note 2) When connecting with a large capacity drive unit, DC connection bar is required.
Always install a large capacity drive unit in the left side of power supply unit, and connect with DC connection bar.

11. AC reactor type

D-AL- (1)

AC reactor		Compatible power supply unit
(1) Type D-AL-	Capacity	
7.5K	7.5kW	MDS-D-CV-37
		MDS-D-CV-75
11K	11.0kW	MDS-D-CV-110
18.5K	18.5kW	MDS-D-CV-185
30K	30.0kW	MDS-D-CV-300
37K	37.0kW	MDS-D-CV-370
45K	45.0kW	MDS-D-CV-450
55K	55.0kW	MDS-D-CV-550

12. Peripheral devices type

MDS-B-HR- (1) (2)

(1) Signal division function class

Symbol	Scale output voltage class
11	Output number 1
12	Output number 2 (with division)

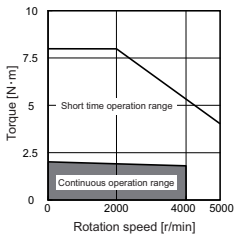
(2) Degree of protection

Symbol	Degree of protection
None	IP65
P	IP67

Servo motor

Stall torque	Rated rotation speed	Servo motor type	Explanation of type		
2.0N・m	4000r/min	HF75 ☐☐ -xxx (1)(2) (3)	(1) Magnetic brake	B	with brake
				None	without brake
			(2) Shaft end	S	Straight
				T	Taper
			(3) Encoder	XXX	Type

Torque characteristics

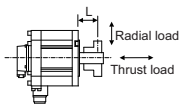


Specifications

Item		Specifications	
Compatible drive unit (*1)	1-axis type	-	MDS-D-V1-20
	2-axis type	-	MDS-D-V2-2020 (L,M) MDS-D-V2-4020 (M)
	3-axis type	-	MDS-DM-V3-202020 (L,M,S) MDS-DM-V3-404040 (L,M,S)
	Multi axis integrated type	-	-
	Regenerative resistor type	MDS-D-SVJ3-07/07NA	-
Continuous characteristics	Rated output[kW]	0.75	0.75
	Rated current[A]	3.1	3.1
	Rated torque[N・m]	1.8	1.8
	Stall current[A]	3.2	3.2
	Stall torque[N・m]	2.0	2.0
Maximum momentary output (For power supply selection)[kW]		2.6	2.6
Rated rotation speed[r/min]		4000	4000
Maximum rotation speed[r/min]		5000	5000
Maximum current[A]		14.0	14.0
Maximum torque[N・m]		8.0	8.0
Power rate at continuous rated torque[kW/s]		12.3	12.3
Max. deceleration torque of dynamic brake(Tdp)[N・m]		2.71	5.43
Motor inertia[$\times10^{-4}$ kg•m^2]		2.6	2.6
(Brake inertia)[$\times10^{-4}$ kg•m^2]		2.8	2.8
Maximum motor shaft conversion load inertia ratio	High-speed, high-accuracy machine[$\times10^{-4}$ kg•m^2]	7.8	7.8
	General machine tool (interpolation axis)[$\times10^{-4}$ kg•m^2]	13.0	13.0
	Non-interpolation axis [$\times10^{-4}$ kg•m^2]	18.2	18.2
Mass	(Without) [kg]	2.5	2.5
	(With brake)[kg]	3.9	3.9
Heat-resistant class		155(F)	155(F)
Degree of protection		IP67 (The shaft-through portion is excluded.)	IP67 (The shaft-through portion is excluded.)
Quakeproof level[m/s^2] ([G])		X:24.5(2.5),Y:24.5(2.5)	X:24.5(2.5),Y:24.5(2.5)
Axis tolerable load (Taper shaft)	Radial load (*2)[N] ([mm])	245 (L=33)	245 (L=33)
	Thrust load[N]	147	147
Axis tolerable load (Straight shaft)	Radial load (*2)[N] ([mm])	245 (L=33)	245 (L=33)
	Thrust load[N]	147	147
Oil level (*3)[mm]		15	15
Absolute position encoder	16,000,000 p/rev (A74N)	-	MDS-D-V1/V2
	1,000,000 p/rev (A51)	MDS-D-SVJ3	MDS-D-V1/V2 MDS-DM
	260,000 p/rev (A48)	MDS-D-SVJ3	MDS-D-V1/V2 MDS-DM

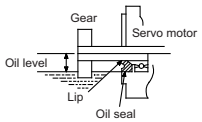
(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)



L : Length from flange installation surface to center of load weight [mm]

(*3)



Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C (with no freezing) Storage: -15°C to +70°C (with no freezing)
Ambient humidity	Operation:80% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Magnetic brake characteristics

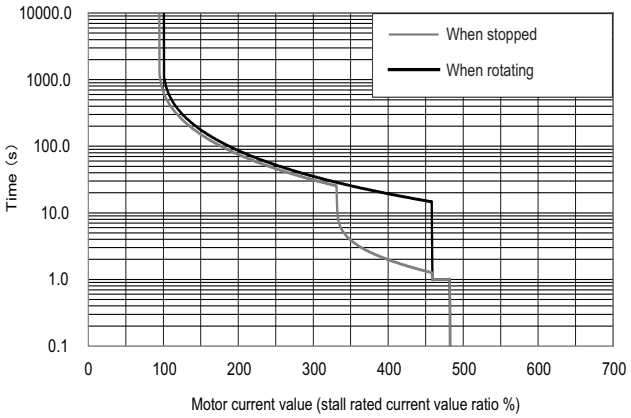
Item	Specifications
Rated voltage	24VDC
Rated current at 20°C[A]	0.38
Static friction torque[N・m]	2.4
Release delay time (*1)[s]	0.03
Braking delay time (DC OFF) (*1)[s]	0.03
Brake life (*2)[times]	20,000

(*1) This is the representative value for the initial attraction gap at 20°C.

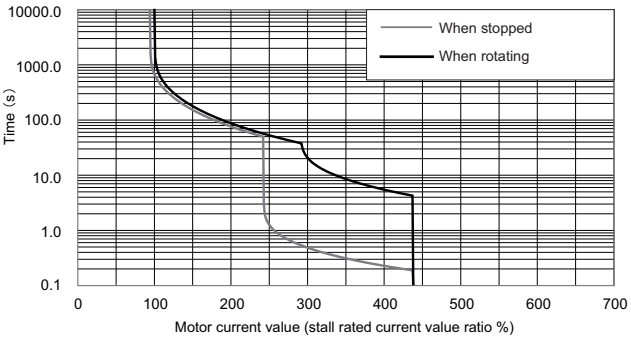
(*2) The brake gap will widen through brake lining wear caused by braking. However, the gap cannot be adjusted. Thus, the brake life is considered to be reached when adjustments are required.

Servo overload protection characteristics

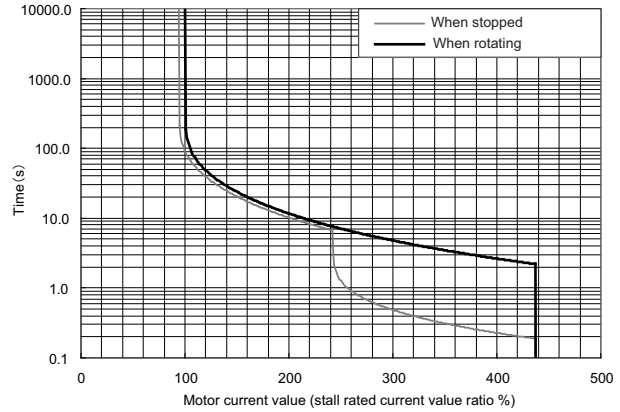
SVJ3 series



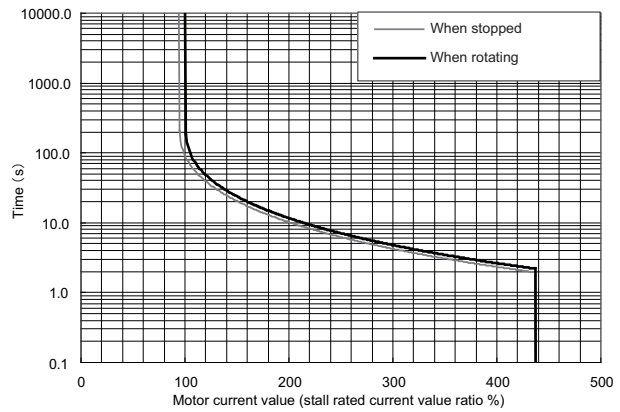
D series



MDS-DM-V3-202020

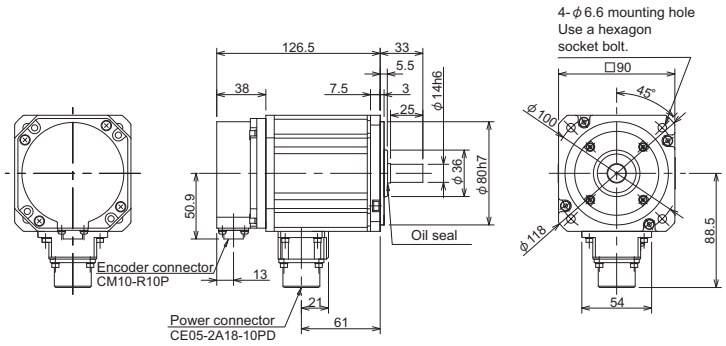


MDS-DM-V3-404040



Outline dimension drawings [Unit : mm]

HF75S-A48



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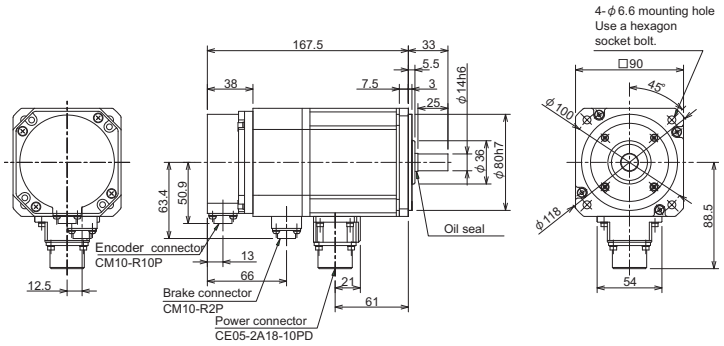

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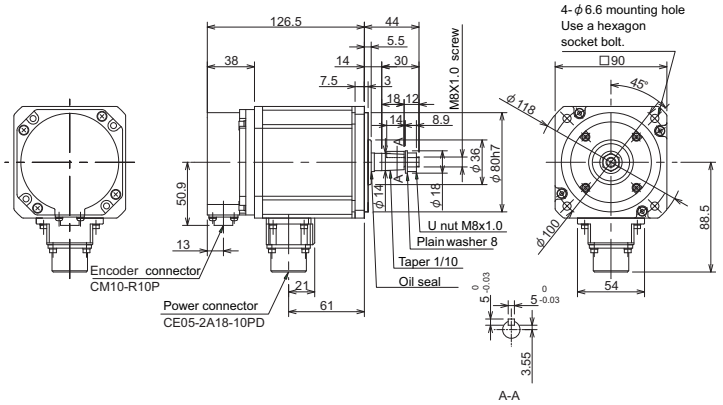

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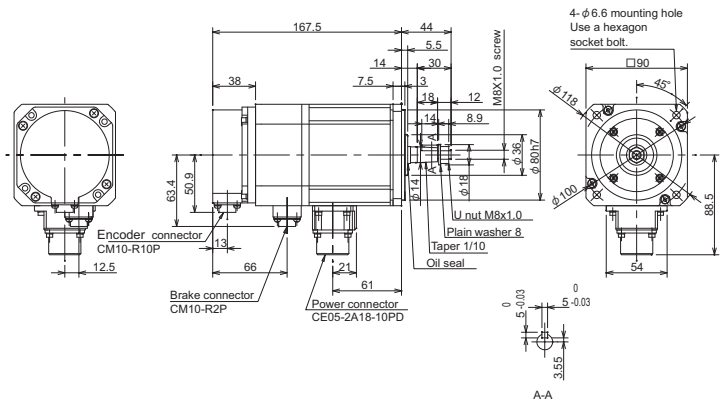

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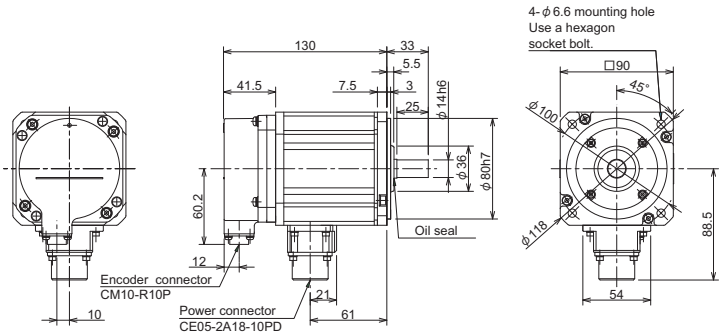

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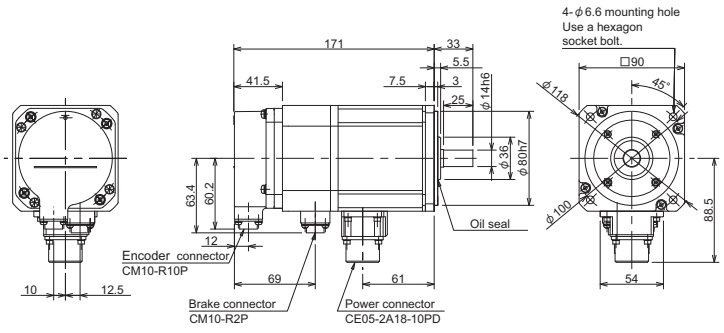

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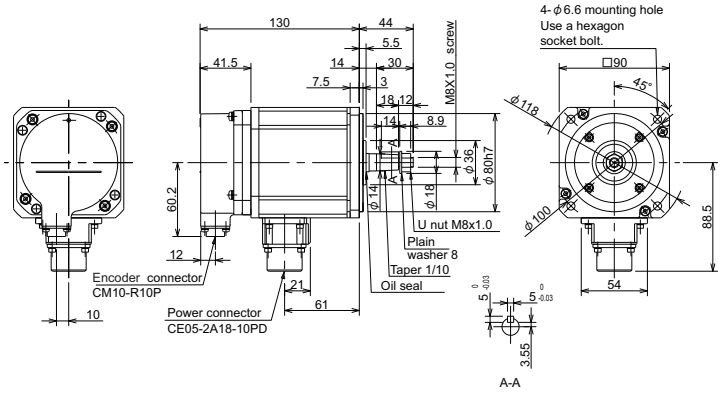

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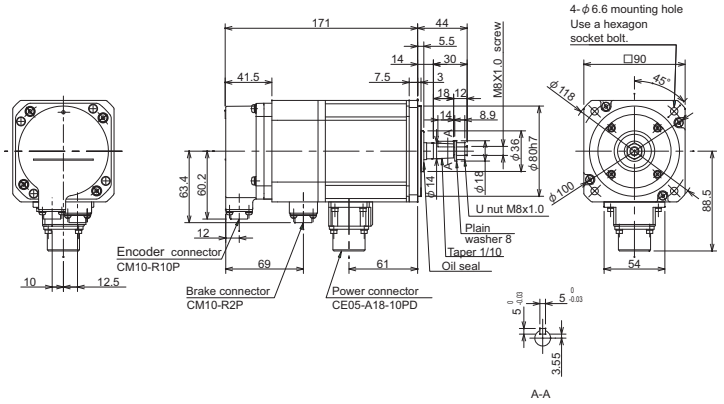
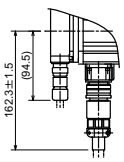
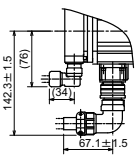
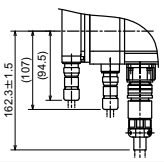
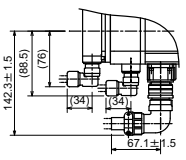
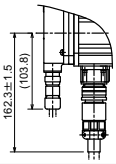
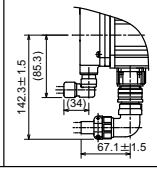
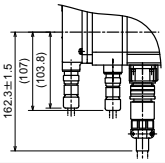
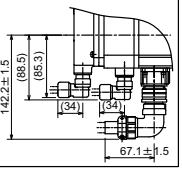
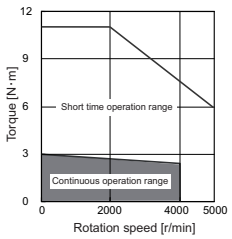


D48				D51/D74			
Without brake		With brake		Without brake		With brake	
Straight plug	Right angle plug	Straight plug	Right angle plug	Straight plug	Right angle plug	Straight plug	Right angle plug
							

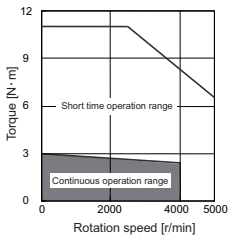
Stall torque	Rated rotation speed	Servo motor type	Explanation of type		
3.0N・m	4000r/min	HF105 ☐☐ -xxx (1)(2) (3)	(1) Magnetic brake	B	with brake
				None	without brake
			(2) Shaft end	S	Straight
				T	Taper
			(3) Encoder	XXX	Type

Torque characteristics

SVJ3 series



D,DM series

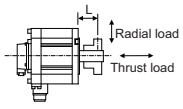


Specifications

Item		Specifications	
Compatible drive unit (*1)	1-axis type	-	MDS-D-V1-20
	2-axis type	-	MDS-D-V2-2020 (L,M) MDS-D-V2-4020 (M)
	3-axis type	-	MDS-DM-V3-202020 (L,M,S) MDS-DM-V3-404040 (L,M,S)
	Multi axis integrated type	-	-
	Regenerative resistor type	MDS-D-SVJ3-07/07NA	-
Continuous characteristics	Rated output[kW]	1.0	1.0
	Rated current[A]	3.7	3.7
	Rated torque[N・m]	2.4	2.4
	Stall current[A]	4.6	4.6
	Stall torque[N・m]	3.0	3.0
Maximum momentary output (For power supply selection)[kW]		3.6	3.6
Rated rotation speed[r/min]		4000	4000
Maximum rotation speed[r/min]		5000	5000
Maximum current[A]		15.5	15.5
Maximum torque[N・m]		11.0	11.0
Power rate at continuous rated torque[kW/s]		11.2	11.2
Max. deceleration torque of dynamic brake(Tdp)[N・m]		5.10	10.21
Motor inertia[$\times 10^{-4}$ kg•m^2]		5.1	5.1
(Brake inertia)[$\times 10^{-4}$ kg•m^2]		5.3	5.3
Maximum motor shaft conversion load inertia ratio	High-speed, high-accuracy machine[$\times 10^{-4}$ kg•m^2]	15.3	15.3
	General machine tool (interpolation axis)[$\times 10^{-4}$ kg•m^2]	25.5	25.5
	Non-interpolation axis [$\times 10^{-4}$ kg•m^2]	35.7	35.7
Mass	(Without) [kg]	4.3	4.3
	(With brake)[kg]	5.7	5.7
Heat-resistant class		155(F)	155(F)
Degree of protection		IP67 (The shaft-through portion is excluded.)	IP67 (The shaft-through portion is excluded.)
Quakeproof level[m/s^2] ([G])		X:24.5(2.5),Y:24.5(2.5)	X:24.5(2.5),Y:24.5(2.5)
Axis tolerable load (Taper shaft)	Radial load (*2)[N] ([mm])	245 (L=33)	245 (L=33)
	Thrust load[N]	147	147
Axis tolerable load (Straight shaft)	Radial load (*2)[N] ([mm])	245 (L=33)	245 (L=33)
	Thrust load[N]	147	147
Oil level (*3)[mm]		15	15
Absolute position encoder	16,000,000 p/rev (A74N)	-	MDS-D-V1/V2
	1,000,000 p/rev (A51)	MDS-D-SVJ3	MDS-D-V1/V2 MDS-DM
	260,000 p/rev (A48)	MDS-D-SVJ3	MDS-D-V1/V2 MDS-DM

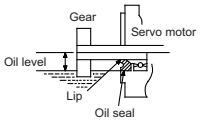
(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)



L : Length from flange installation surface to center of load weight [mm]

(*3)



Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C (with no freezing) Storage: -15°C to +70°C (with no freezing)
Ambient humidity	Operation:80% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Magnetic brake characteristics

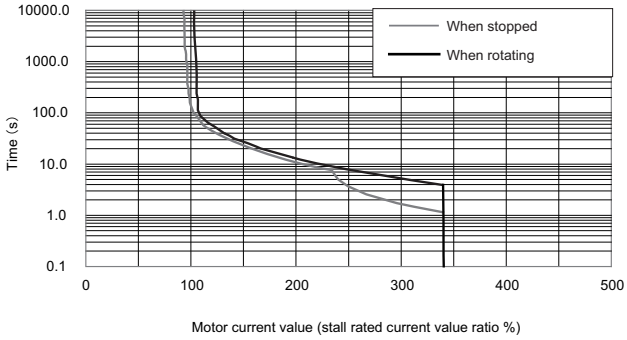
Item	Specifications
Rated voltage	24VDC
Rated current at 20°C[A]	0.38
Static friction torque[N・m]	2.4
Release delay time (*1)[s]	0.03
Braking delay time (DC OFF) (*1)[s]	0.03
Brake life (*2)[times]	20,000

(*1) This is the representative value for the initial attraction gap at 20°C.

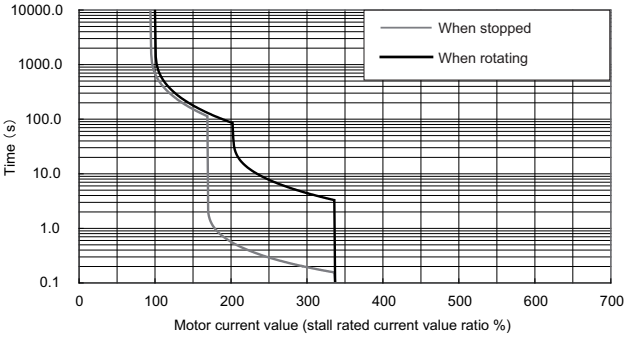
(*2) The brake gap will widen through brake lining wear caused by braking. However, the gap cannot be adjusted. Thus, the brake life is considered to be reached when adjustments are required.

Servo overload protection characteristics

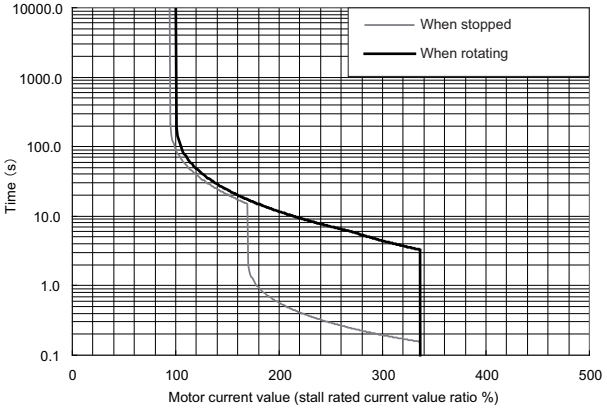
SVJ3 series



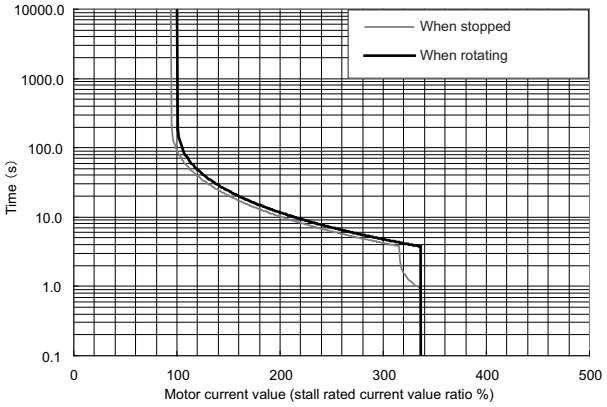
D series



MDS-DM-V3-202020

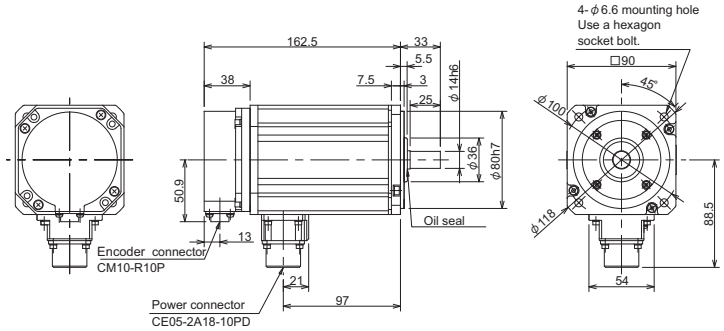


MDS-DM-V3-404040



Outline dimension drawings [Unit : mm]

HF105S-A48



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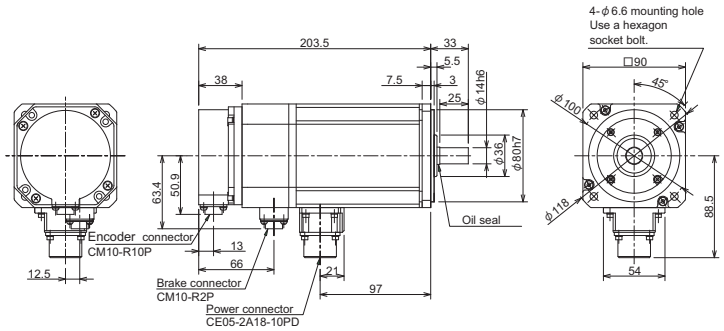

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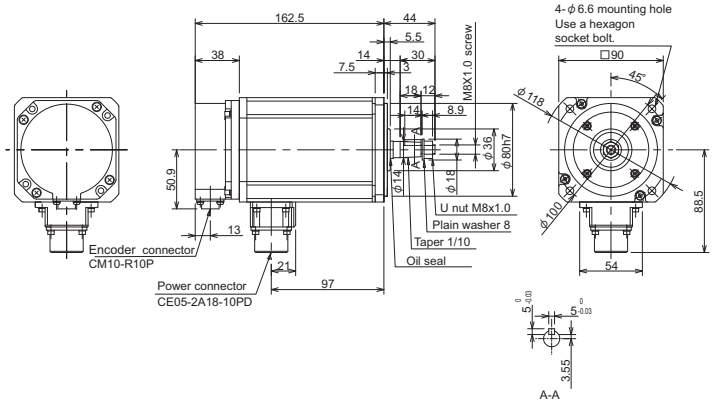

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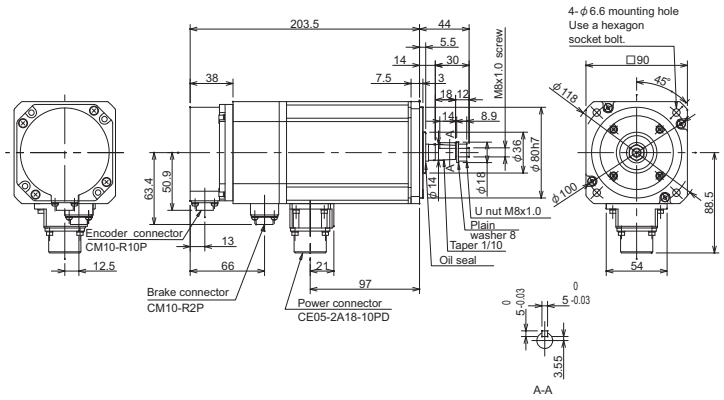
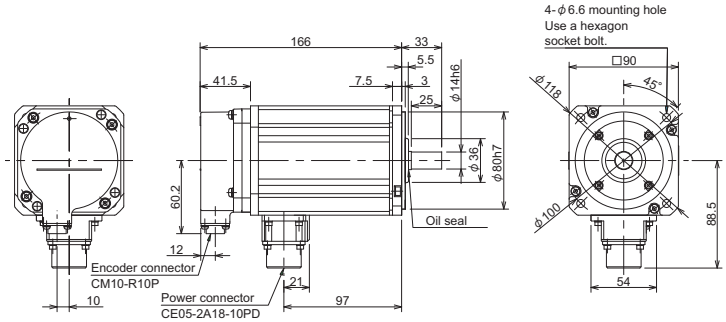


HF105S-A51,-A74N



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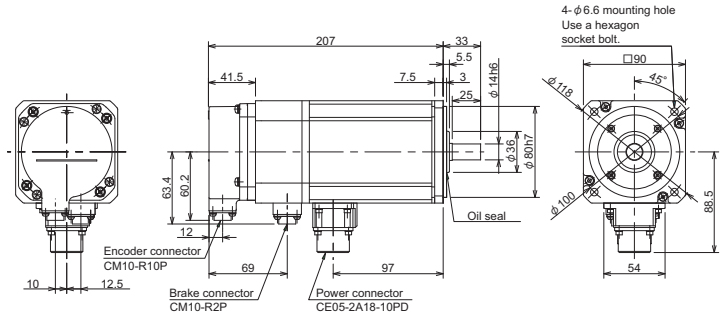

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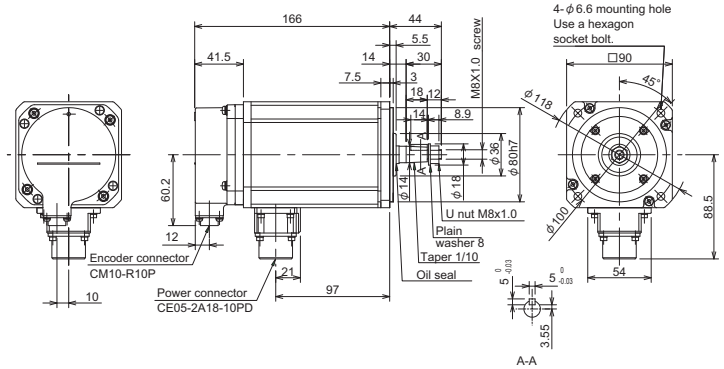

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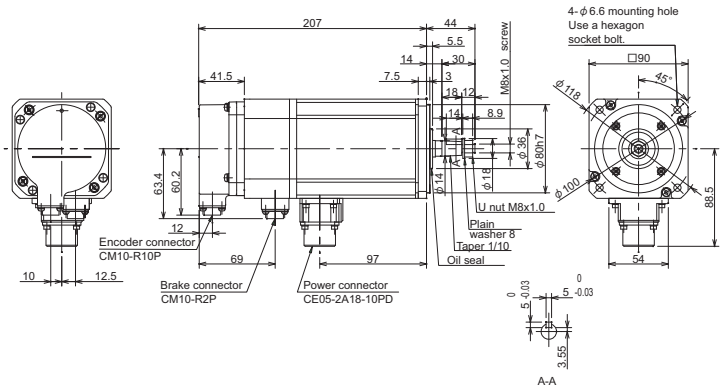
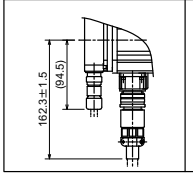
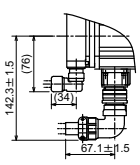
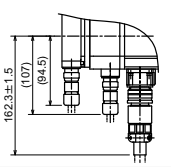
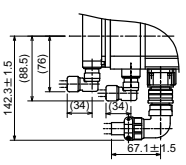
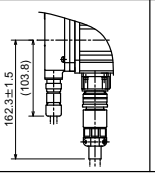
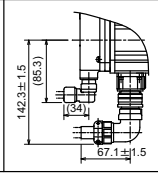
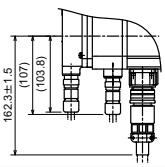
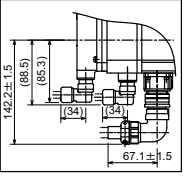
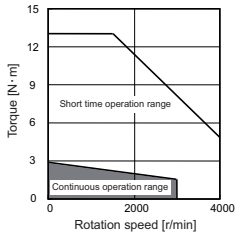


D48				D51/D74			
Without brake		With brake		Without brake		With brake	
Straight plug	Right angle plug	Straight plug	Right angle plug	Straight plug	Right angle plug	Straight plug	Right angle plug
							

Stall torque	Rated rotation speed	Servo motor type	Explanation of type		
2.9N・m	3000r/min	HF54 ☐☐ -xxx (1)(2) (3)	(1) Magnetic brake	B	with brake
				None	without brake
			(2) Shaft end	S	Straight
				T	Taper
			(3) Encoder	XXX	Type

Torque characteristics

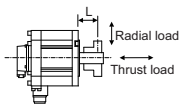


Specifications

Item		Specifications	
Compatible drive unit (*1)	1-axis type	-	MDS-D-V1-40
	2-axis type	-	MDS-D-V2-4020 (L) MDS-D-V2-4040 (L,M) MDS-D-V2-8040 (M)
	3-axis type	-	MDS-DM-V3-404040 (L,M,S)
	Multi axis integrated type	-	MDS-DM-SPV3/SPV3F (L,M,S) MDS-DM-SPV2/SPV2F (L,M)
	Regenerative resistor type	MDS-D-SVJ3-07/07NA	-
Continuous characteristics	Rated output[kW]	0.5	0.5
	Rated current[A]	2.0	2.0
	Rated torque[N・m]	1.6	1.6
	Stall current[A]	3.2	3.2
	Stall torque[N・m]	2.9	2.9
Maximum momentary output (For power supply selection)[kW]		2.3	2.3
Rated rotation speed[r/min]		3000	3000
Maximum rotation speed[r/min]		4000	4000
Maximum current[A]		16.8	16.8
Maximum torque[N・m]		13.0	13.0
Power rate at continuous rated torque[kW/s]		4.1	4.1
Max. deceleration torque of dynamic brake(Tdp)[N・m]		1.98	3.96
Motor inertia[$\times 10^{-4}$ kg•m^2]		6.1	6.1
(Brake inertia)[$\times 10^{-4}$ kg•m^2]		8.3	8.3
Maximum motor shaft conversion load inertia ratio	High-speed, high-accuracy machine[$\times 10^{-4}$ kg•m^2]	18.3	18.3
	General machine tool (interpolation axis)[$\times 10^{-4}$ kg•m^2]	30.5	30.5
	Non-interpolation axis [$\times 10^{-4}$ kg•m^2]	42.7	42.7
Mass	(Without) [kg]	4.8	4.8
	(With brake)[kg]	6.7	6.7
Heat-resistant class		155(F)	155(F)
Degree of protection		IP67 (The shaft-through portion is excluded.)	IP67 (The shaft-through portion is excluded.)
Quakeproof level[m/s^2] ([G])		X:24.5(2.5),Y:24.5(2.5)	X:24.5(2.5),Y:24.5(2.5)
Axis tolerable load (Taper shaft)	Radial load (*2)[N] ([mm])	392 (L=58)	392 (L=58)
	Thrust load[N]	490	490
Axis tolerable load (Straight shaft)	Radial load (*2)[N] ([mm])	980 (L=55)	980 (L=55)
	Thrust load[N]	490	490
Oil level (*3)[mm]		22.5	22.5
Absolute position encoder	16,000,000 p/rev (A74N)	-	MDS-D-V1/V2
	1,000,000 p/rev (A51)	MDS-D-SVJ3	MDS-D-V1/V2 MDS-DM
	260,000 p/rev (A48)	MDS-D-SVJ3	MDS-D-V1/V2 MDS-DM

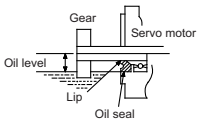
(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)



L : Length from flange installation surface to center of load weight [mm]

(*3)



Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C (with no freezing) Storage: -15°C to +70°C (with no freezing)
Ambient humidity	Operation:80% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Magnetic brake characteristics

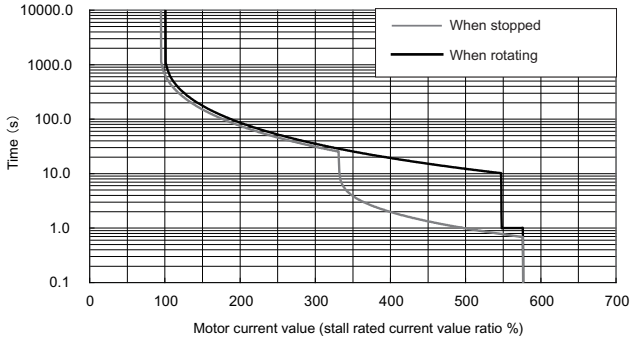
Item	Specifications
Rated voltage	24VDC
Rated current at 20°C[A]	0.8
Static friction torque[N・m]	8.3
Release delay time (*1)[s]	0.04
Braking delay time (DC OFF) (*1)[s]	0.03
Brake life (*2)[times]	20,000

(*1) This is the representative value for the initial attraction gap at 20°C.

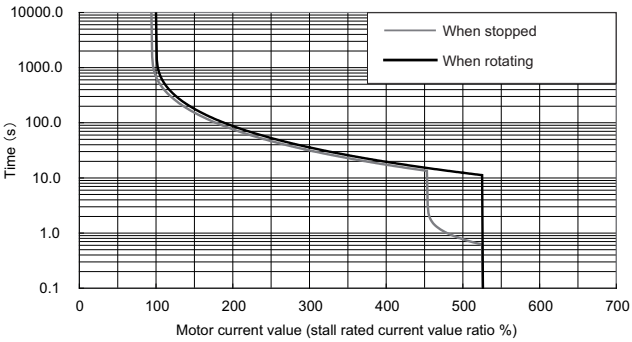
(*2) The brake gap will widen through brake lining wear caused by braking. However, the gap cannot be adjusted. Thus, the brake life is considered to be reached when adjustments are required.

Servo overload protection characteristics

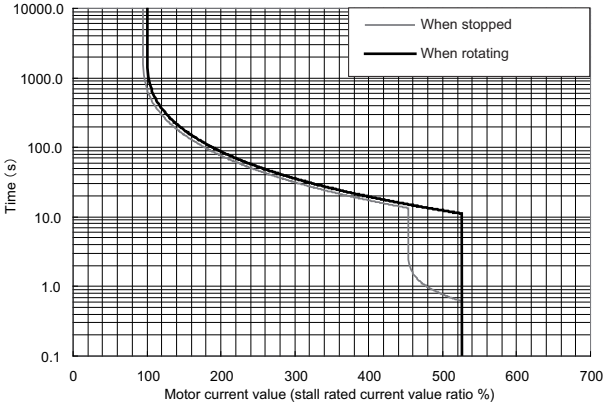
SVJ3 series



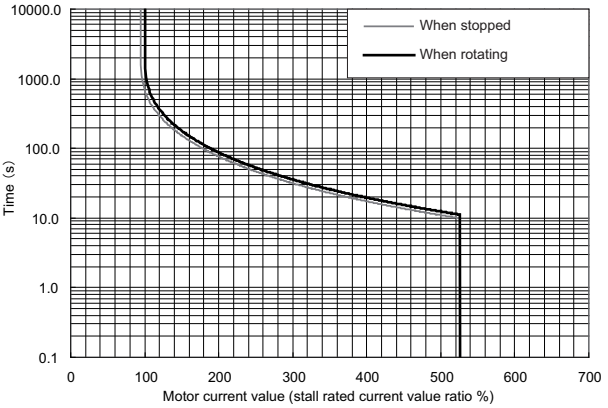
D series



MDS-DM-V3-404040

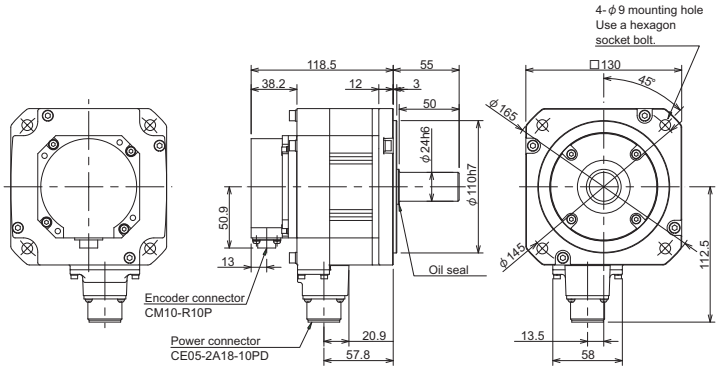


MDS-DM-SPV series

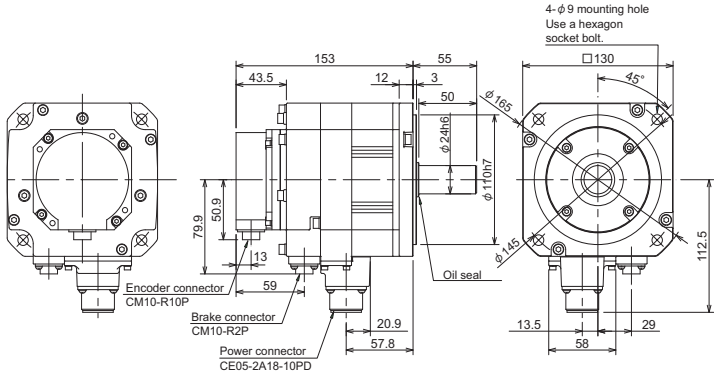


Outline dimension drawings [Unit : mm]

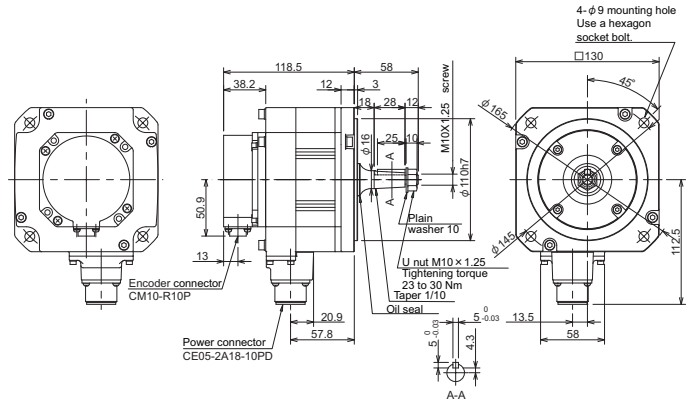
HF54S-A48



HF54BS-A48



HF54T-A48



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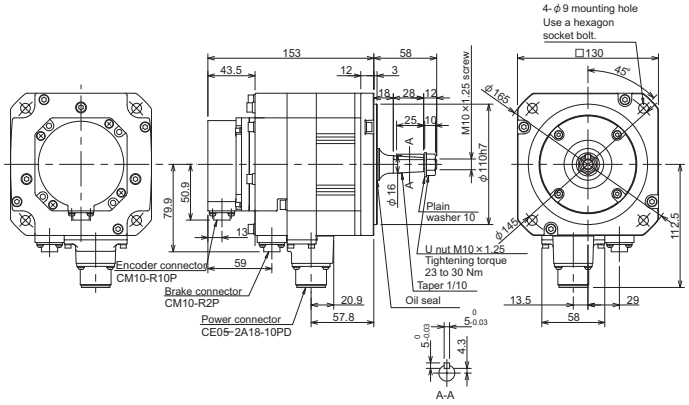
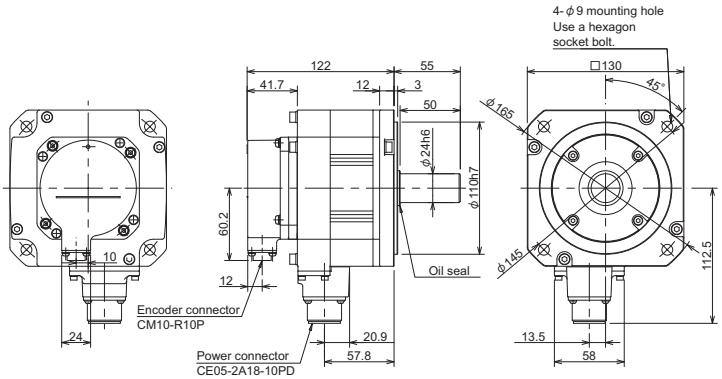


HF54S-A51,-A74N



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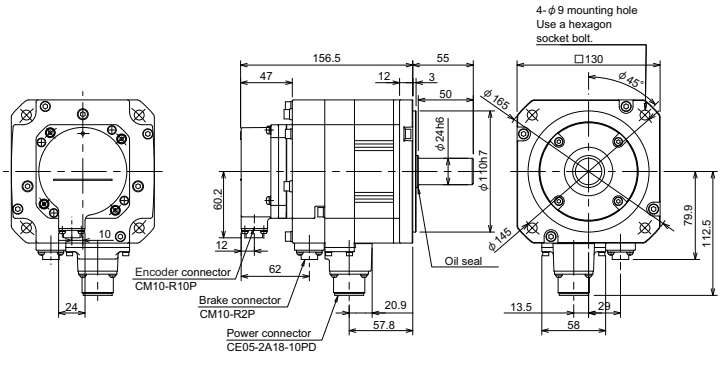

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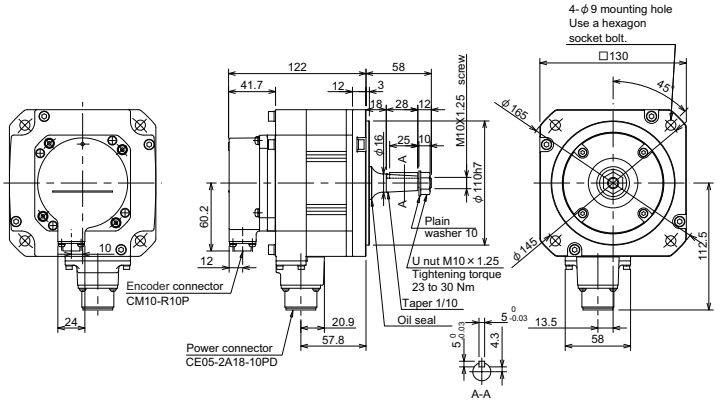

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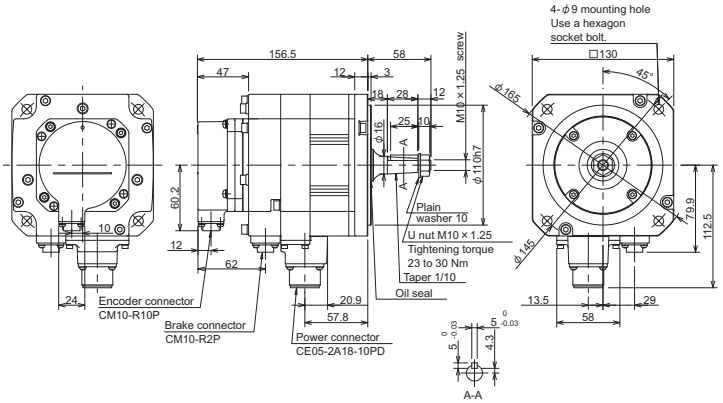
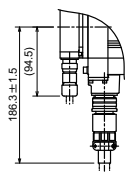
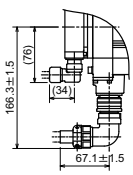
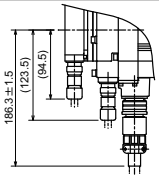
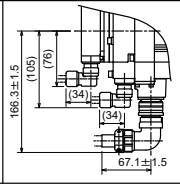
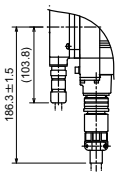
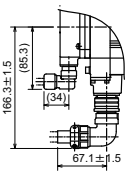
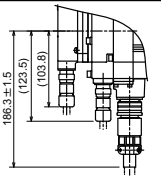
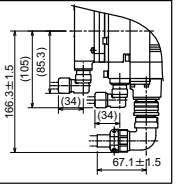
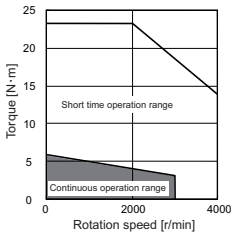


A48				A51/A74N			
Without brake		With brake		Without brake		With brake	
Straight plug	Right angle plug	Straight plug	Right angle plug	Straight plug	Right angle plug	Straight plug	Right angle plug
							

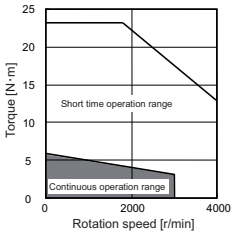
Stall torque	Rated rotation speed	Servo motor type	Explanation of type		
5.9N・m	3000r/min	HF104 ☐☐ -xxx (1)(2) (3)	(1) Magnetic brake	B	with brake
				None	without brake
			(2) Shaft end	S	Straight
				T	Taper
			(3) Encoder	XXX	Type

Torque characteristics

D,DM series



SVJ3 series

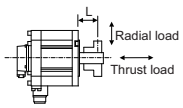


Specifications

Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-D-V1-40
	2-axis type	MDS-D-V2-4020 (L) MDS-D-V2-4040 (L,M) MDS-D-V2-8040 (M)
	3-axis type	MDS-DM-V3-404040 (L,M,S)
	Multi axis integrated type	MDS-DM-SPV3/SPV3F (L,M,S) MDS-DM-SPV2/SPV2F (L,M)
	Regenerative resistor type	MDS-D-SVJ3-10/10NA
Continuous characteristics	Rated output[kW]	1.0
	Rated current[A]	3.9
	Rated torque[N・m]	3.2
	Stall current[A]	6.6
	Stall torque[N・m]	5.9
Maximum momentary output (For power supply selection)[kW]		5.0
Rated rotation speed[r/min]		3000
Maximum rotation speed[r/min]		4000
Maximum current[A]		29.0
Maximum torque[N・m]		23.3
Power rate at continuous rated torque[kW/s]		8.4
Max. deceleration torque of dynamic brake(Tdp)[N・m]		10.02
Motor inertia[$\times 10^{-4}$ kg•m^2]		11.9
(Brake inertia)[$\times 10^{-4}$ kg•m^2]		14.1
Maximum motor shaft conversion load inertia ratio	High-speed, high-accuracy machine[$\times 10^{-4}$ kg•m^2]	35.7
	General machine tool (interpolation axis)[$\times 10^{-4}$ kg•m^2]	59.5
	Non-interpolation axis [$\times 10^{-4}$ kg•m^2]	83.3
Mass	(Without) [kg]	6.5
	(With brake)[kg]	8.5
Heat-resistant class		155(F)
Degree of protection		IP67 (The shaft-through portion is excluded.)
Quakeproof level[m/s^2] ([G])		X:24.5(2.5),Y:24.5(2.5)
Axis tolerable load (Taper shaft)	Radial load (*2)[N] ([mm])	392 (L=58)
	Thrust load[N]	490
Axis tolerable load (Straight shaft)	Radial load (*2)[N] ([mm])	980 (L=55)
	Thrust load[N]	490
Oil level (*3)[mm]		22.5
Absolute position encoder	16,000,000 p/rev (A74N)	MDS-D-V1/V2
	1,000,000 p/rev (A51)	MDS-D-V1/V2 MDS-DM, MDS-D-SVJ3
	260,000 p/rev (A48)	MDS-D-V1/V2 MDS-DM, MDS-D-SVJ3

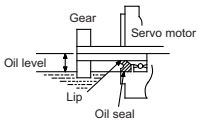
(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)



L : Length from flange installation surface to center of load weight [mm]

(*3)



Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C (with no freezing) Storage: -15°C to +70°C (with no freezing)
Ambient humidity	Operation:80% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Magnetic brake characteristics

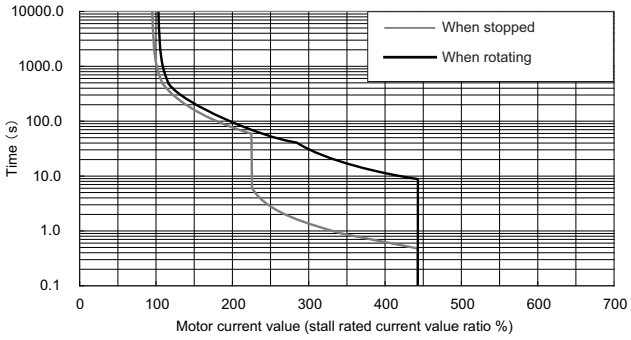
Item	Specifications
Rated voltage	24VDC
Rated current at 20°C[A]	0.8
Static friction torque[N・m]	8.3
Release delay time (*1)[s]	0.04
Braking delay time (DC OFF) (*1)[s]	0.03
Brake life (*2)[times]	20,000

(*1) This is the representative value for the initial attraction gap at 20°C.

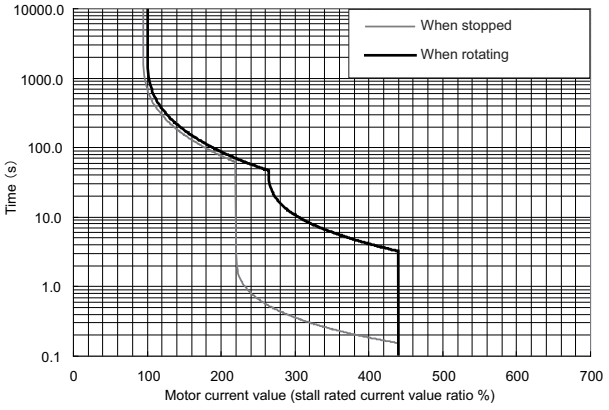
(*2) The brake gap will widen through brake lining wear caused by braking. However, the gap cannot be adjusted. Thus, the brake life is considered to be reached when adjustments are required.

Servo overload protection characteristics

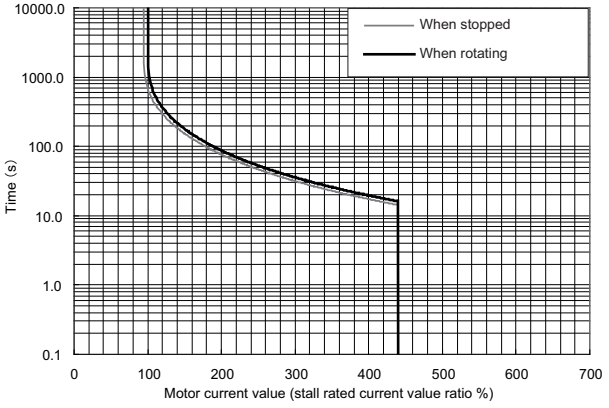
D series



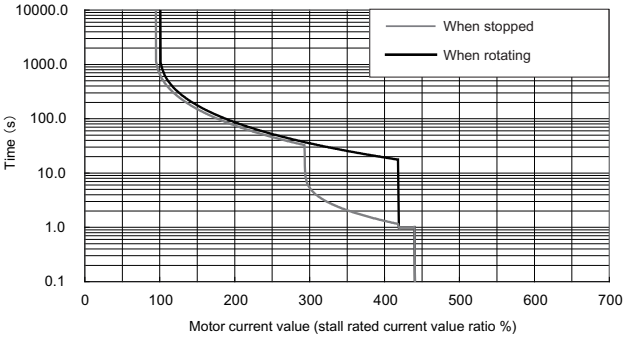
MDS-DM-V3-404040



MDS-DM-SPV series

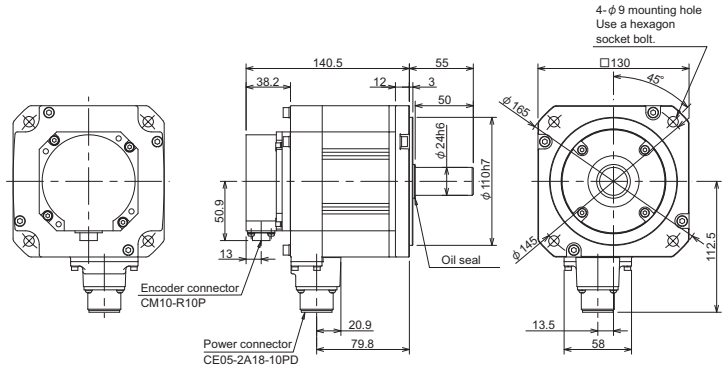


SVJ3 series



Outline dimension drawings [Unit : mm]

HF104S-A48



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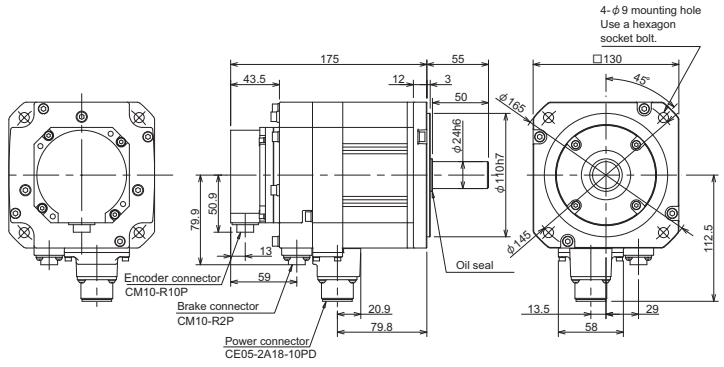
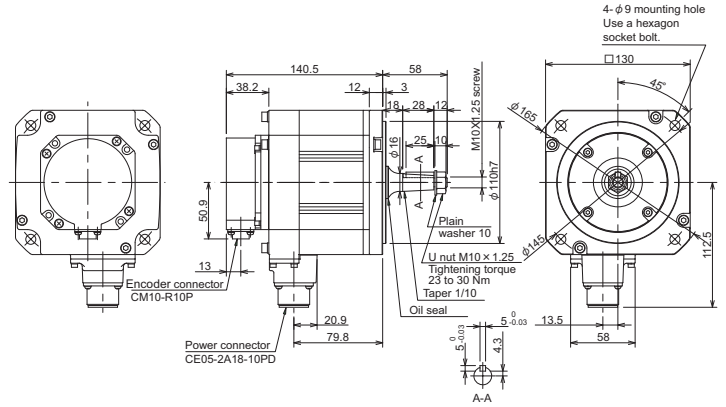


HF104T-A48



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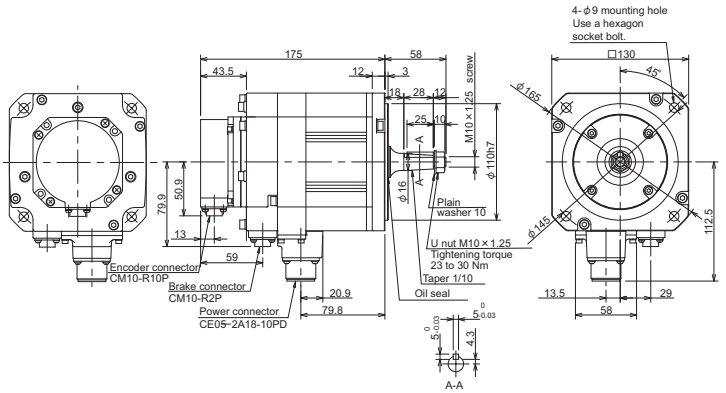
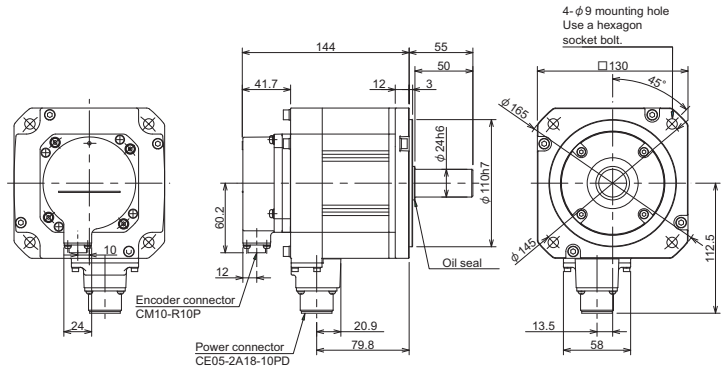


HF104S-A51,-A74N



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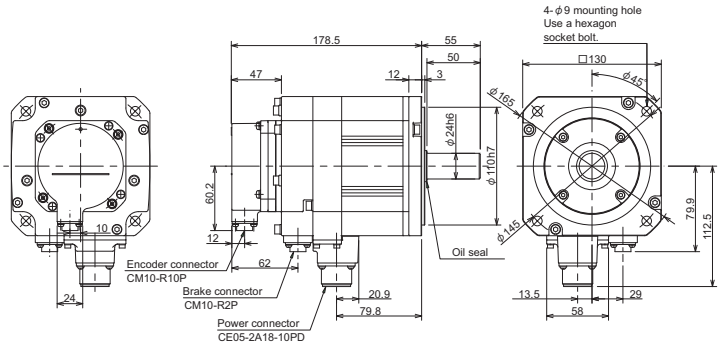

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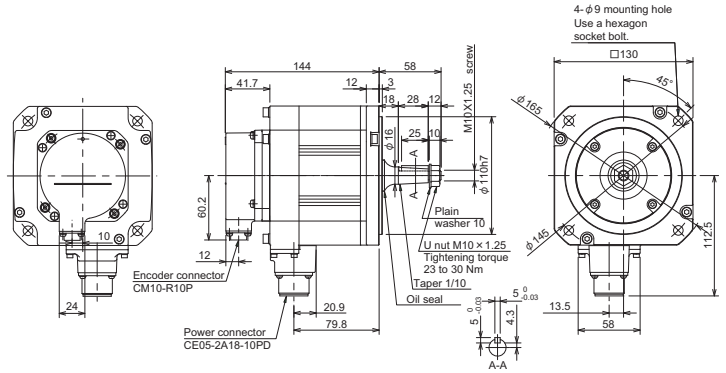

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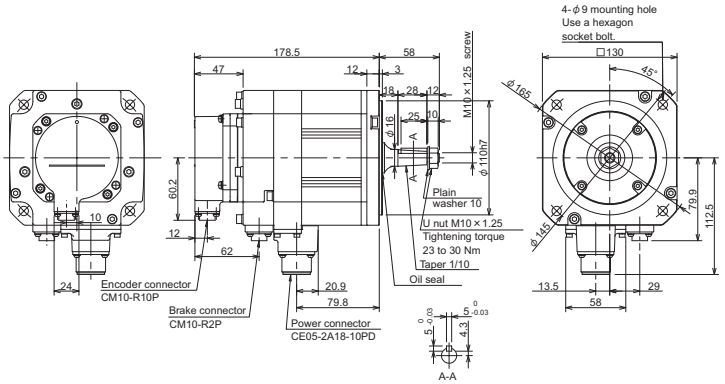
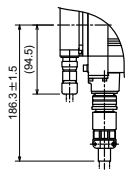
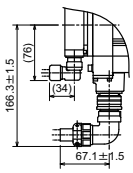
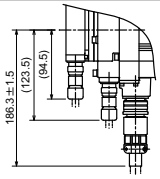
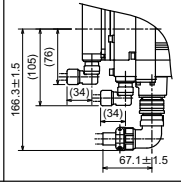
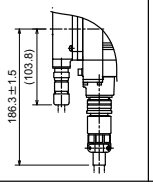
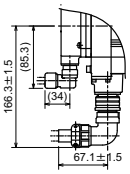
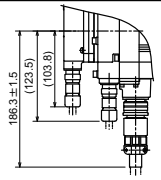
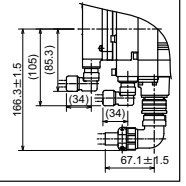
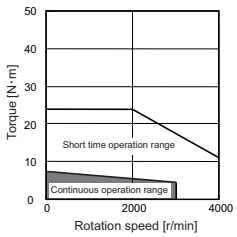


A48				A51/A74N			
Without brake		With brake		Without brake		With brake	
Straight plug	Right angle plug	Straight plug	Right angle plug	Straight plug	Right angle plug	Straight plug	Right angle plug
							

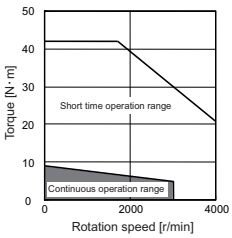
Stall torque	Rated rotation speed	Servo motor type	Explanation of type		
9.0N・m	3000r/min	HF154 ☐☐ -xxx (1)(2) (3)	(1) Magnetic brake	B	with brake
				None	without brake
			(2) Shaft end	S	Straight
				T	Taper
			(3) Encoder	XXX	Type

Torque characteristics

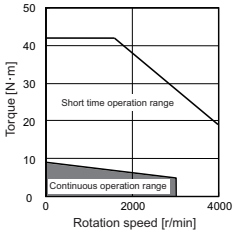
DM series



D series



SVJ3 series

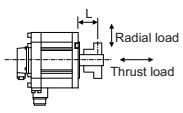


Specifications

Item		Specifications	
Compatible drive unit (*1)	1-axis type	-	MDS-D-V1-80
	2-axis type	-	MDS-D-V2-8040 (L) MDS-D-V2-8080 (L,M) MDS-D-V2-16080 (M)
	3-axis type	MDS-DM-V3-404040 (L,M,S)	-
	Multi axis integrated type	-	MDS-DM-SPV3/SPV3F (L,M,S) MDS-DM-SPV2/SPV2F (L,M)
	Regenerative resistor type	-	MDS-D-SVJ3-20/20NA
Continuous characteristics	Rated output[kW]	1.5	1.5
	Rated current[A]	5.6	5.6
	Rated torque[N・m]	4.8	4.8
	Stall current[A]	8.5	11
	Stall torque[N・m]	7.0	9.0
Maximum momentary output (For power supply selection)[kW]		9.0	9.0
Rated rotation speed[r/min]		3000	3000
Maximum rotation speed[r/min]		4000	4000
Maximum current[A]		29.0	52.0
Maximum torque[N・m]		23.7	42.0
Power rate at continuous rated torque[kW/s]		12.7	12.7
Max. deceleration torque of dynamic brake(Tdp)[N・m]		15.65	15.65
Motor inertia[$\times 10^{-4}$ kg•m^2]		17.8	17.8
(Brake inertia)[$\times 10^{-4}$ kg•m^2]		20.0	20.0
Maximum motor shaft conversion load inertia ratio	High-speed, high-accuracy machine[$\times 10^{-4}$ kg•m^2]	53.4	53.4
	General machine tool (interpolation axis)[$\times 10^{-4}$ kg•m^2]	89.0	89.0
	Non-interpolation axis [$\times 10^{-4}$ kg•m^2]	124.6	124.6
Mass	(Without) [kg]	8.3	8.3
	(With brake)[kg]	10.3	10.3
Heat-resistant class		155(F)	155(F)
Degree of protection		IP67 (The shaft-through portion is excluded.)	IP67 (The shaft-through portion is excluded.)
Quakeproof level[m/s^2] ([G])		X:24.5(2.5),Y:24.5(2.5)	X:24.5(2.5),Y:24.5(2.5)
Axis tolerable load (Taper shaft)	Radial load (*2)[N] ([mm])	392 (L=58)	392 (L=58)
	Thrust load[N]	490	490
Axis tolerable load (Straight shaft)	Radial load (*2)[N] ([mm])	980 (L=55)	980 (L=55)
	Thrust load[N]	490	490
Oil level (*3)[mm]		22.5	22.5
Absolute position encoder	16,000,000 p/rev (A74N)	-	MDS-D-V1/V2
	1,000,000 p/rev (A51)	MDS-DM	MDS-D/DM, MDS-D-SVJ3
	260,000 p/rev (A48)	MDS-DM	MDS-D/DM, MDS-D-SVJ3

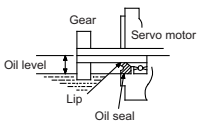
(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)



L : Length from flange installation surface to center of load weight [mm]

(*3)



Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C (with no freezing) Storage: -15°C to +70°C (with no freezing)
Ambient humidity	Operation:80% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Magnetic brake characteristics

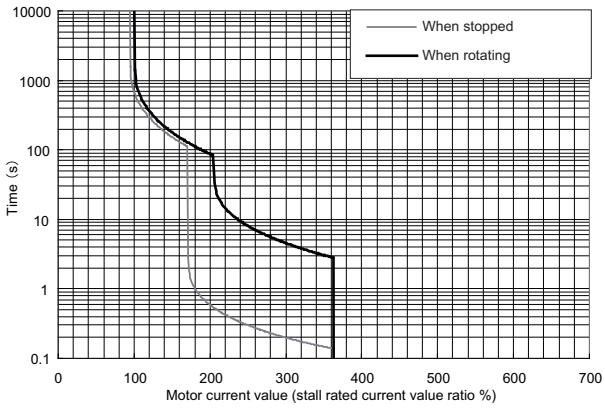
Item	Specifications
Rated voltage	24VDC
Rated current at 20°C[A]	0.8
Static friction torque[N・m]	8.3
Release delay time (*1)[s]	0.04
Braking delay time (DC OFF) (*1)[s]	0.03
Brake life (*2)[times]	20,000

(*1) This is the representative value for the initial attraction gap at 20°C.

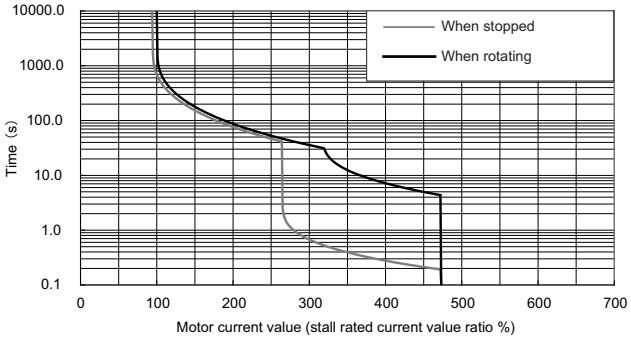
(*2) The brake gap will widen through brake lining wear caused by braking. However, the gap cannot be adjusted. Thus, the brake life is considered to be reached when adjustments are required.

Servo overload protection characteristics

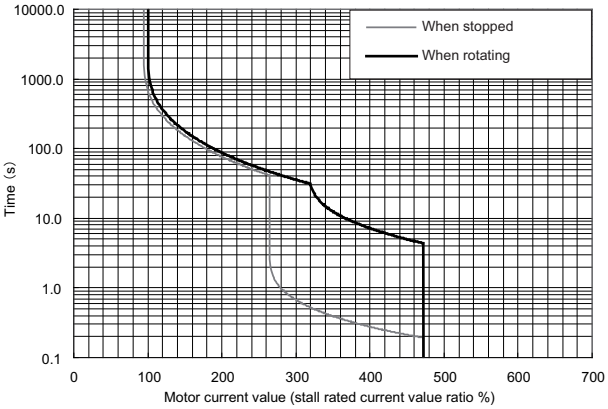
MDS-DM-V3-404040



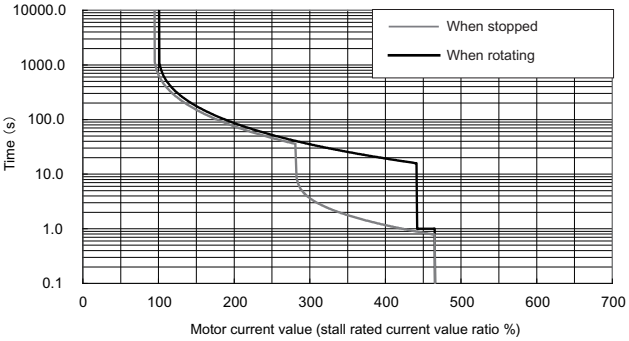
D series



MDS-DM-SPV series

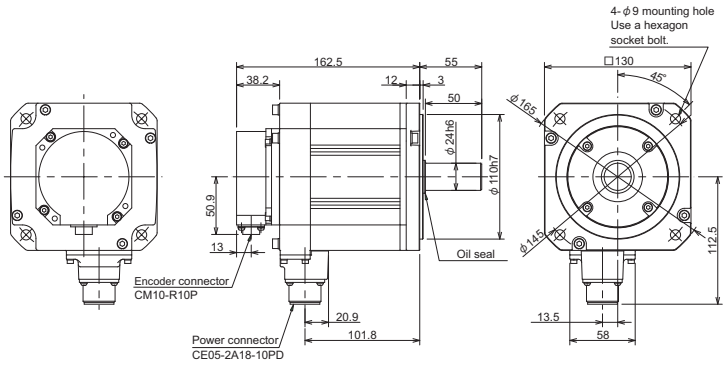


SVJ3 series

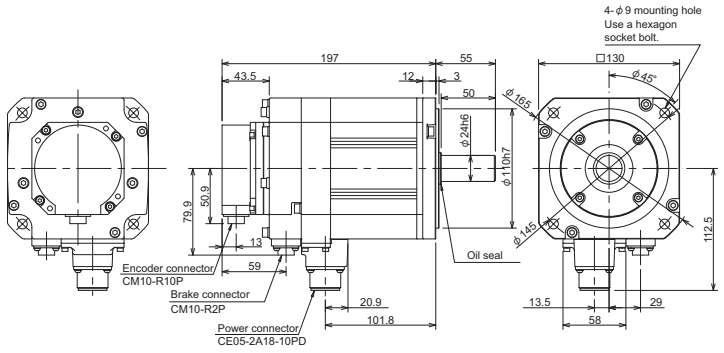


Outline dimension drawings [Unit : mm]

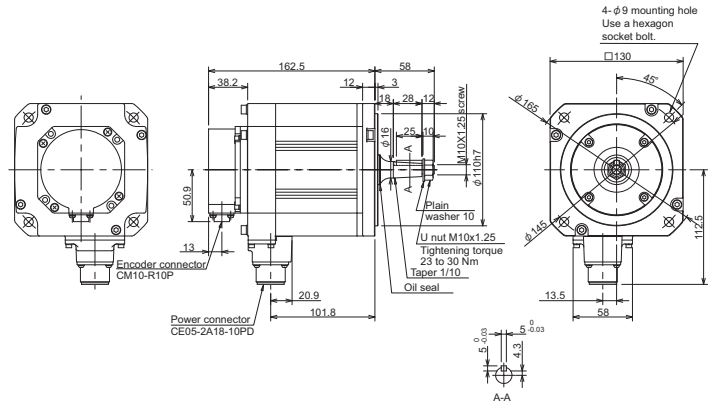
HF154S-A48



HF154BS-A48



HF154T-A48



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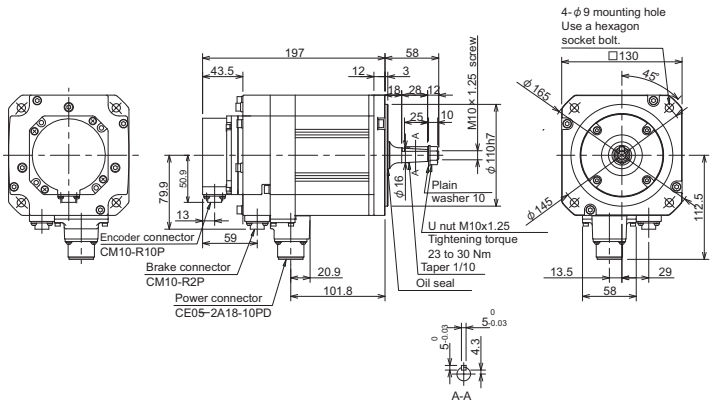
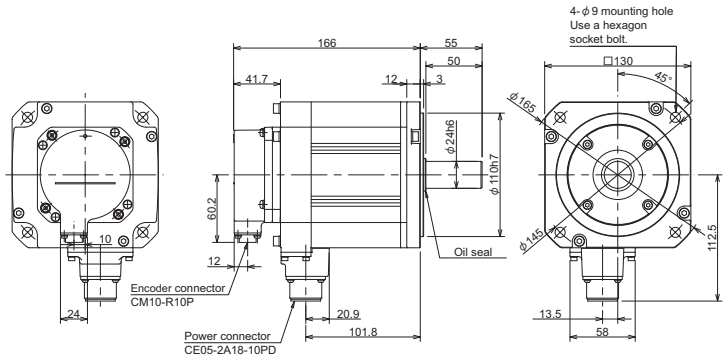


HF154S-A51,-A74N



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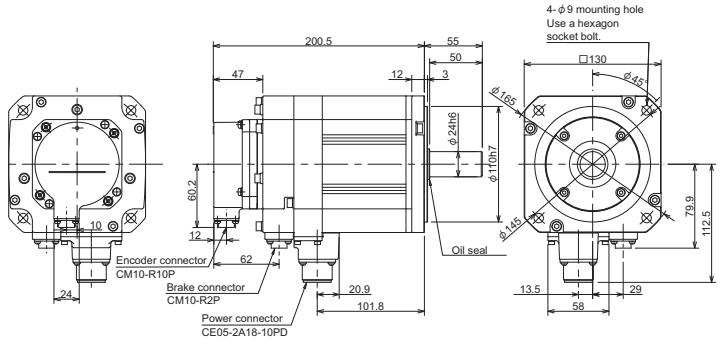

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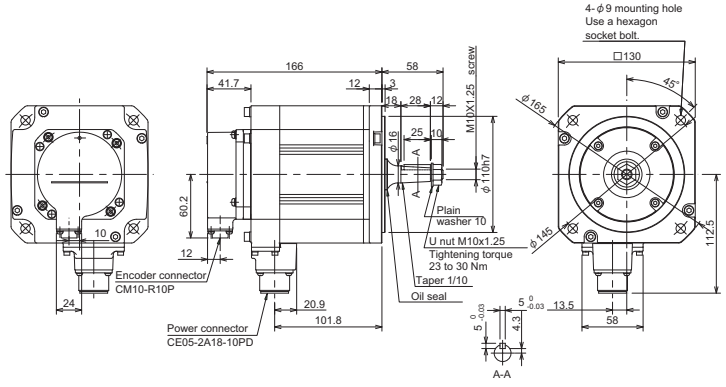

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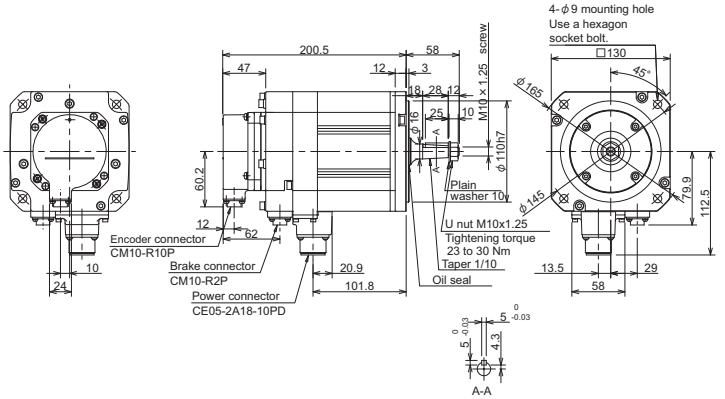
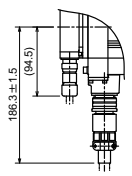
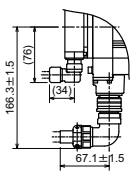
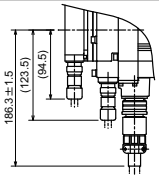
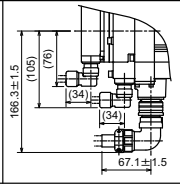
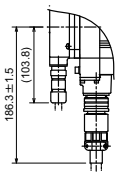
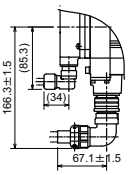
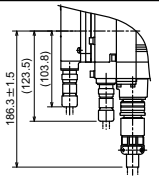
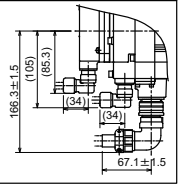
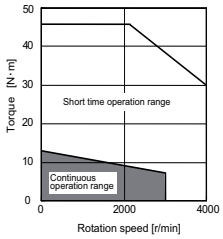


A48				A51/A74N			
Without brake		With brake		Without brake		With brake	
Straight plug	Right angle plug	Straight plug	Right angle plug	Straight plug	Right angle plug	Straight plug	Right angle plug
							

Stall torque	Rated rotation speed	Servo motor type	Explanation of type		
12.0N・m	3000r/min	HF224 ☐☐ -xxx (1)(2) (3)	(1) Magnetic brake	B	with brake
				None	without brake
			(2) Shaft end	S	Straight
				T	Taper
			(3) Encoder	XXX	Type

Torque characteristics

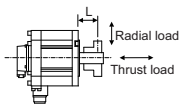


Specifications

Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-D-V1-80
	2-axis type	MDS-D-V2-8040 (L) MDS-D-V2-8080 (L,M) MDS-D-V2-16080 (M)
	3-axis type	-
	Multi axis integrated type	MDS-DM-SPV3/SPV3F (L,M,S) MDS-DM-SPV2/SPV2F (L,M)
	Regenerative resistor type	MDS-D-SVJ3-20/20NA
Continuous characteristics	Rated output[kW]	2.2
	Rated current[A]	8.6
	Rated torque[N・m]	7.0
	Stall current[A]	15
	Stall torque[N・m]	12.0
Maximum momentary output (For power supply selection)[kW]		12.3
Rated rotation speed[r/min]		3000
Maximum rotation speed[r/min]		4000
Maximum current[A]		57.0
Maximum torque[N・m]		46.5
Power rate at continuous rated torque[kW/s]		20.7
Max. deceleration torque of dynamic brake(Tdp)[N・m]		21.77
Motor inertia[$\times 10^{-4}$ kg•m^2]		23.7
(Brake inertia)[$\times 10^{-4}$ kg•m^2]		25.9
Maximum motor shaft conversion load inertia ratio	High-speed, high-accuracy machine[$\times 10^{-4}$ kg•m^2]	71.1
	General machine tool (interpolation axis)[$\times 10^{-4}$ kg•m^2]	118.5
	Non-interpolation axis [$\times 10^{-4}$ kg•m^2]	165.9
Mass	(Without) [kg]	10.0
	(With brake)[kg]	12.0
Heat-resistant class		155(F)
Degree of protection		IP67 (The shaft-through portion is excluded.)
Quakeproof level[m/s^2] ([G])		X:24.5(2.5),Y:24.5(2.5)
Axis tolerable load (Taper shaft)	Radial load (*2)[N] ([mm])	392 (L=58)
	Thrust load[N]	490
Axis tolerable load (Straight shaft)	Radial load (*2)[N] ([mm])	980 (L=55)
	Thrust load[N]	490
Oil level (*3)[mm]		22.5
Absolute position encoder	16,000,000 p/rev (A74N)	MDS-D-V1/V2
	1,000,000 p/rev (A51)	MDS-D-V1/V2 MDS-DM, MDS-D-SVJ3
	260,000 p/rev (A48)	MDS-D-V1/V2 MDS-DM, MDS-D-SVJ3

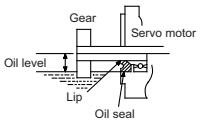
(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)



L : Length from flange installation surface to center of load weight [mm]

(*3)



Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C (with no freezing) Storage: -15°C to +70°C (with no freezing)
Ambient humidity	Operation:80% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Magnetic brake characteristics

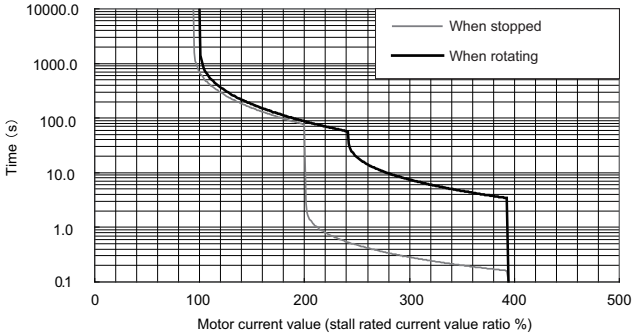
Item	Specifications
Rated voltage	24VDC
Rated current at 20°C[A]	0.8
Static friction torque[N・m]	8.3
Release delay time (*1)[s]	0.04
Braking delay time (DC OFF) (*1)[s]	0.03
Brake life (*2)[times]	20,000

(*1) This is the representative value for the initial attraction gap at 20°C.

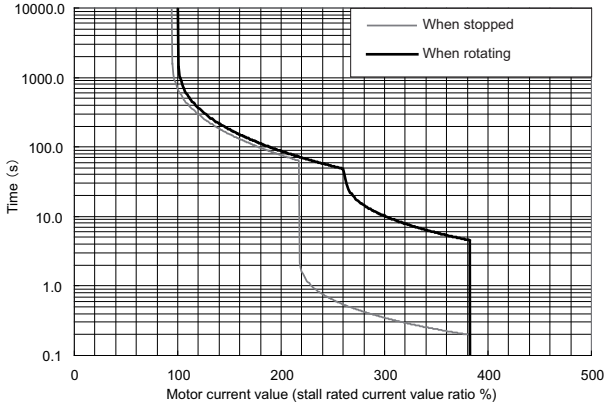
(*2) The brake gap will widen through brake lining wear caused by braking. However, the gap cannot be adjusted. Thus, the brake life is considered to be reached when adjustments are required.

Servo overload protection characteristics

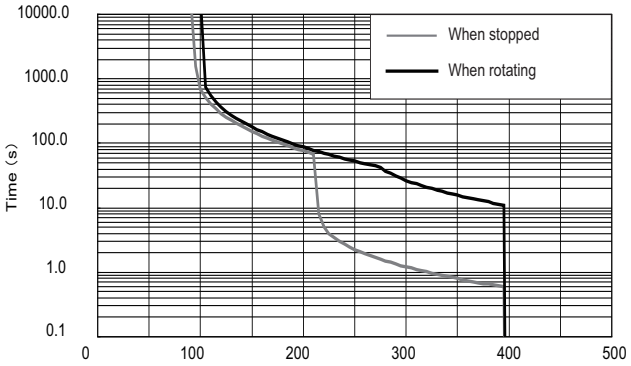
D series



MDS-DM-SPV series

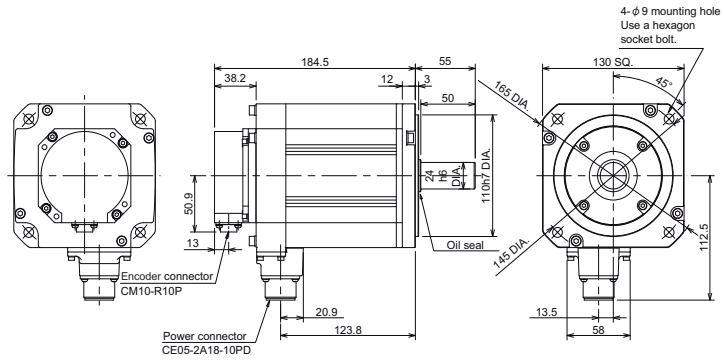


SVJ3 series



Outline dimension drawings [Unit : mm]

HF224S-A48



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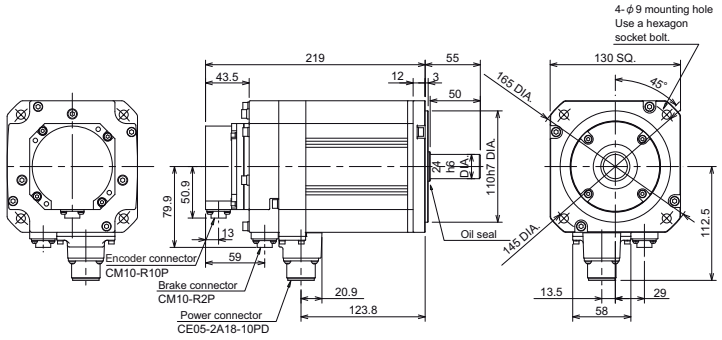

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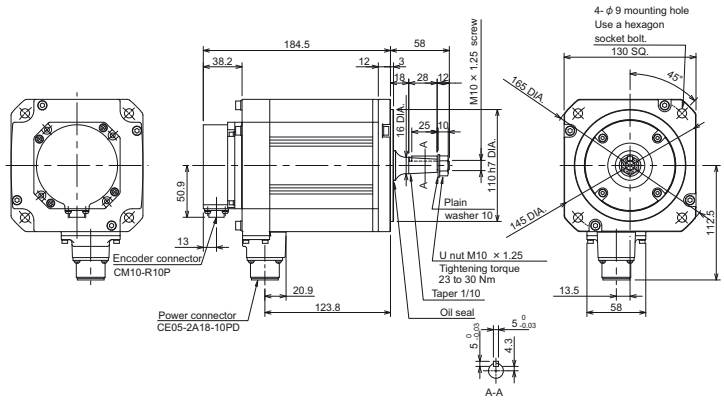

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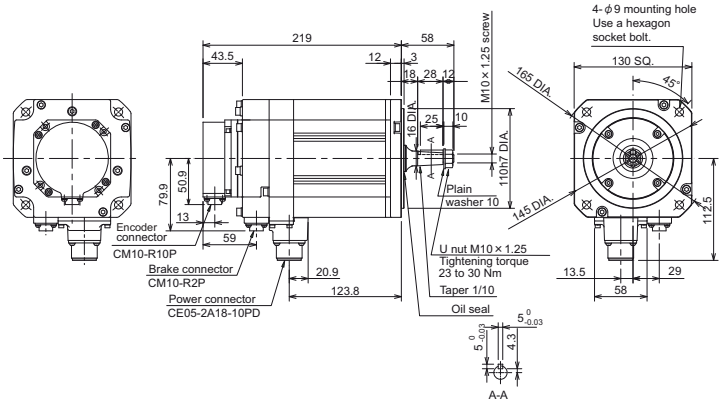
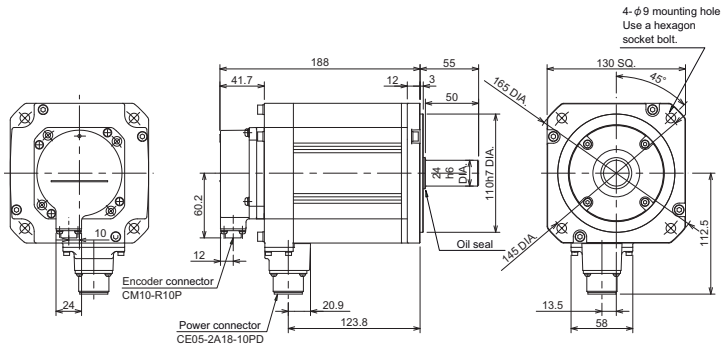


HF224S-A51,-A74N



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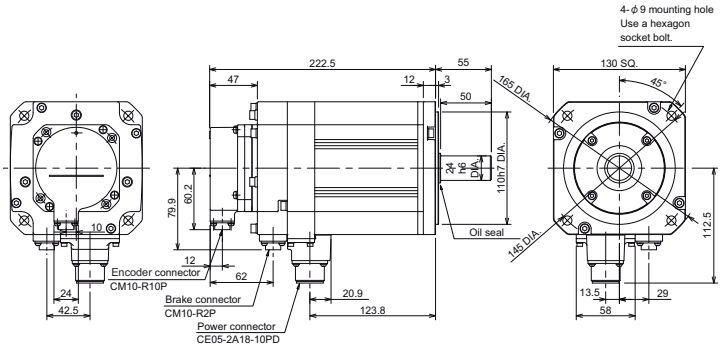

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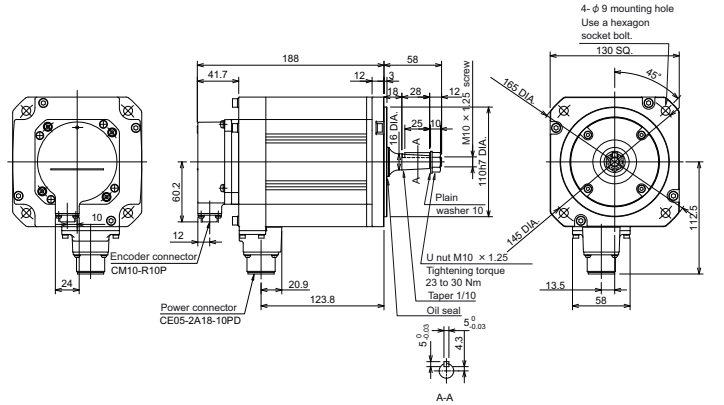

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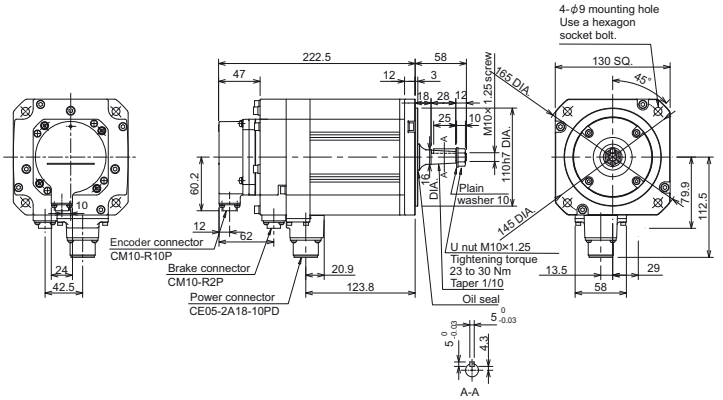
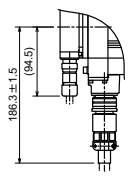
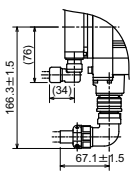
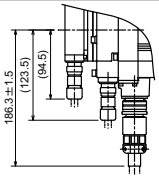
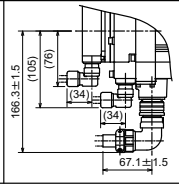
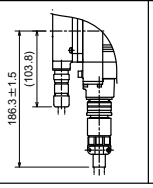
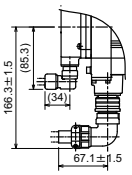
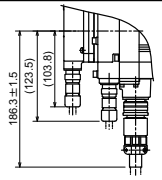
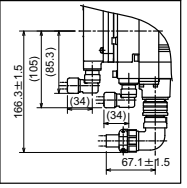
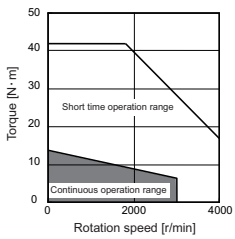


A48				A51/A74N			
Without brake		With brake		Without brake		With brake	
Straight plug	Right angle plug	Straight plug	Right angle plug	Straight plug	Right angle plug	Straight plug	Right angle plug
							

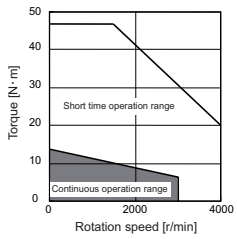
Stall torque	Rated rotation speed	Servo motor type	Explanation of type		
13.7N・m	3000r/min	HF204 ☐ S-xxx (1) (2)	(1) Magnetic brake	B	with brake
				None	without brake
			(2) Encoder	XXX	Type

Torque characteristics

SVJ3 series

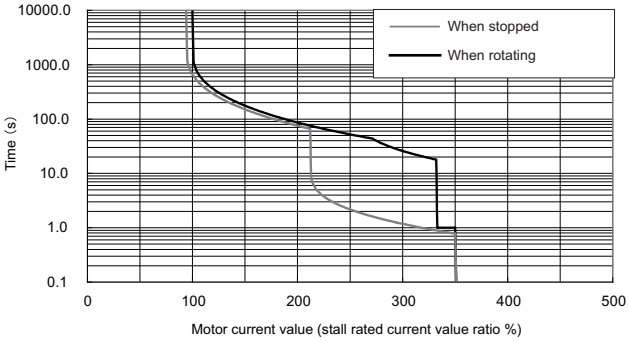


D,DM series

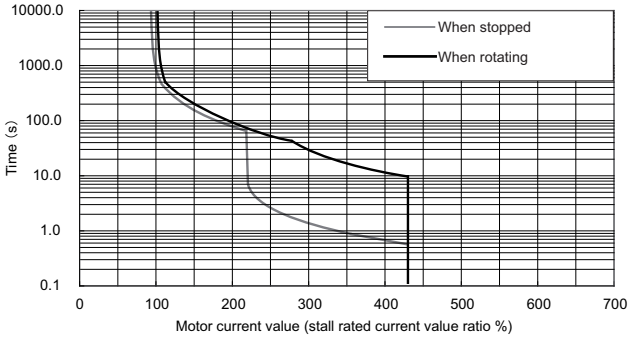


Servo overload protection characteristics

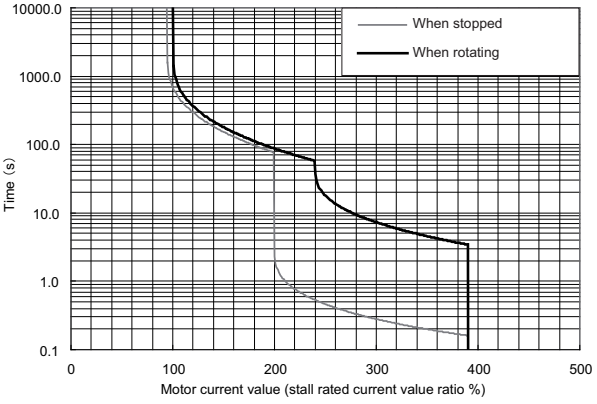
SVJ3 series



D series



MDS-DM-SPV series

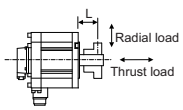


仕様

Item		Specifications	
Compatible drive unit (*1)	1-axis type	-	MDS-D-V1-80
	2-axis type	-	MDS-D-V2-8040 (L) MDS-D-V2-8080 (L,M) MDS-D-V2-16080 (M)
	3-axis type	-	-
	Multi axis integrated type	-	MDS-DM-SPV3/SPV3F (L,M,S) MDS-DM-SPV2/SPV2F (L,M)
	Regenerative resistor type	MDS-D-SVJ3-20/20NA	-
Continuous characteristics	Rated output[kW]	2.0	2.0
	Rated current[A]	6.8	6.8
	Rated torque[N・m]	6.4	6.4
	Stall current[A]	15	15
	Stall torque[N・m]	13.7	13.7
Maximum momentary output (For power supply selection)[kW]		8.0	8.0
Rated rotation speed[r/min]		3000	3000
Maximum rotation speed[r/min]		4000	4000
Maximum current[A]		52.0	57.0
Maximum torque[N・m]		42.0	47.0
Power rate at continuous rated torque[kW/s]		10.6	10.6
Max. deceleration torque of dynamic brake(Tdp)[N・m]		15.97	15.97
Motor inertia[$\times 10^{-4}$ kg•m^2]		38.3	38.3
(Brake inertia)[$\times 10^{-4}$ kg•m^2]		48.0	48.0
Maximum motor shaft conversion load inertia ratio	High-speed, high-accuracy machine[$\times 10^{-4}$ kg•m^2]	114.9	114.9
	General machine tool (interpolation axis)[$\times 10^{-4}$ kg•m^2]	191.5	191.5
	Non-interpolation axis [$\times 10^{-4}$ kg•m^2]	268.1	268.1
Mass	(Without) [kg]	12.0	12.0
	(With brake)[kg]	18	18
Heat-resistant class		155(F)	155(F)
Degree of protection		IP67 (The shaft-through portion is excluded.)	IP67 (The shaft-through portion is excluded.)
Quakeproof level[m/s^2] ([G])		X:24.5(2.5),Y:29.4(3)	X:24.5(2.5),Y:29.4(3)
Axis tolerable load (Taper shaft)	Radial load (*2)[N] ([mm])	-	-
	Thrust load[N]	-	-
Axis tolerable load (Straight shaft)	Radial load (*2)[N] ([mm])	2058 (L=79)	2058 (L=79)
	Thrust load[N]	980	980
Oil level (*3)[mm]		30	30
Absolute position encoder	16,000,000 p/rev (A74N)	-	MDS-D-V1/V2
	1,000,000 p/rev (A51)	MDS-D-SVJ3	MDS-D-V1/V2 MDS-DM
	260,000 p/rev (A48)	MDS-D-SVJ3	MDS-D-V1/V2 MDS-DM

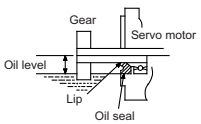
(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)



L : Length from flange installation surface to center of load weight [mm]

(*3)



Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C (with no freezing) Storage: -15°C to +70°C (with no freezing)
Ambient humidity	Operation:80% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Magnetic brake characteristics

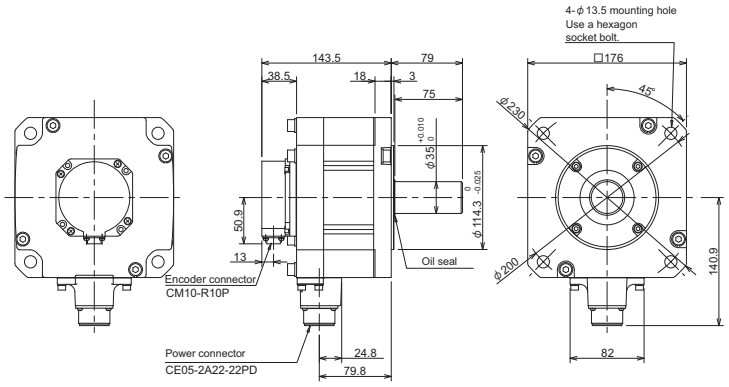
Item	Specifications
Rated voltage	24VDC
Rated current at 20°C[A]	1.4
Static friction torque[N・m]	43.1
Release delay time (*1)[s]	0.1
Braking delay time (DC OFF) (*1)[s]	0.03
Brake life (*2)[times]	20,000

(*1) This is the representative value for the initial attraction gap at 20°C.

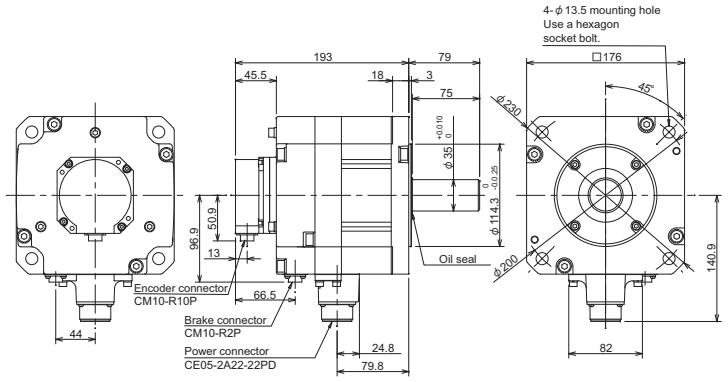
(*2) The brake gap will widen through brake lining wear caused by braking. However, the gap cannot be adjusted. Thus, the brake life is considered to be reached when adjustments are required.

Outline dimension drawings [Unit : mm]

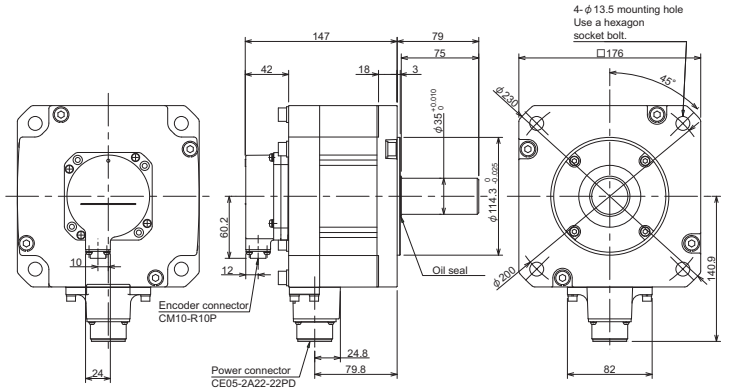
HF204S-A48



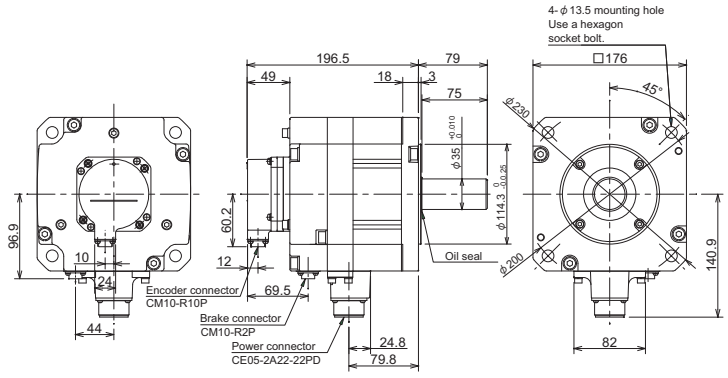
HF204BS-A48

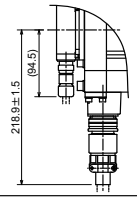
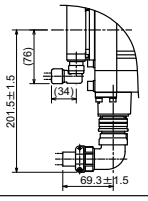
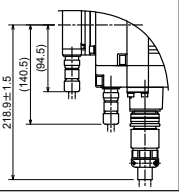
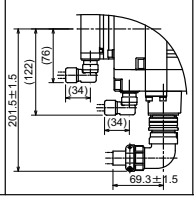
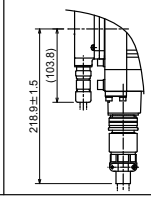
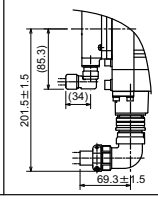
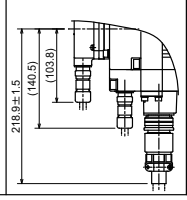
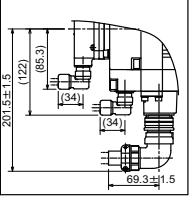


HF204S-A51,-A74N



HF204BS-A51,-A74N

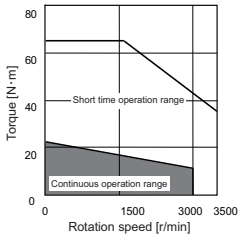


A48				A51/A74N			
Without brake		With brake		Without brake		With brake	
Straight plug	Right angle plug	Straight plug	Right angle plug	Straight plug	Right angle plug	Straight plug	Right angle plug
							

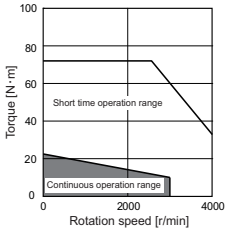
Stall torque	Rated rotation speed	Servo motor type	Explanation of type		
22.5N・m	3000r/min	HF354 ☐ S-xxx (1) (2)	(1) Magnetic brake	B	with brake
				None	without brake
			(2) Encoder	XXX	Type

Torque characteristics

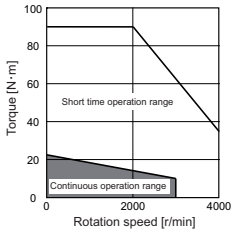
SVJ3 series



DM series

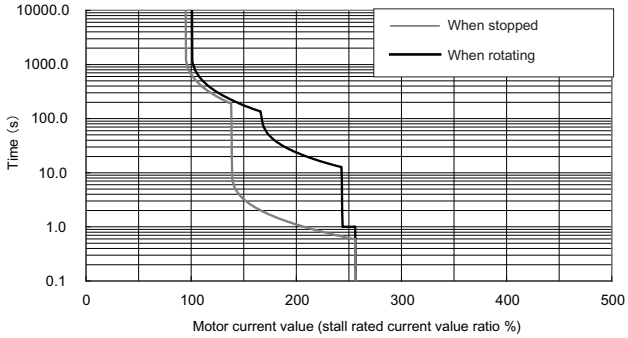


D series

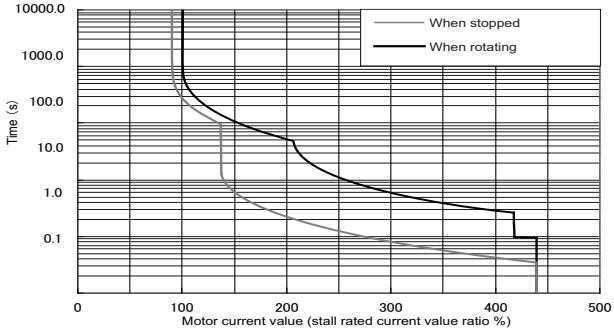


Servo overload protection characteristics

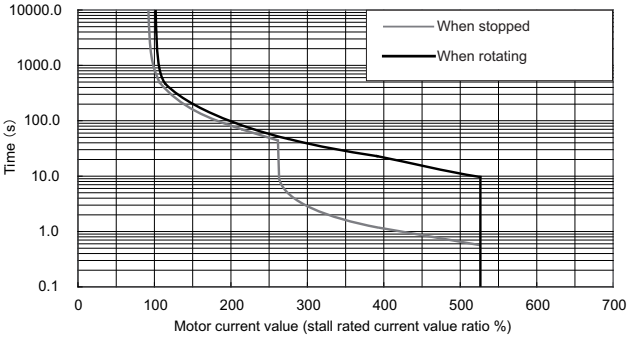
SVJ3 series



DM series



D series

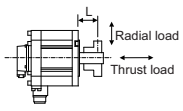


Specifications

Item		Specifications		
Compatible drive unit (*1)	1-axis type	-	-	MDS-D-V1-160
	2-axis type	-	-	MDS-D-V2-16080 (L) MDS-D-V2-160160 (L,M) MDS-D-V2-160160W (L,M)
	3-axis type	-	-	-
	Multi axis integrated type	-	MDS-DM-SPV3F-200120	-
	Regenerative resistor type	MDS-D-SVJ3-35/35NA	-	-
Continuous characteristics	Rated output[kW]	3.5	3.5	3.5
	Rated current[A]	12	12	12
	Rated torque[N・m]	11.1	11.1	11.1
	Stall current[A]	22	22	22
	Stall torque[N・m]	22.5	22.5	22.5
Maximum momentary output (For power supply selection)[kW]		18.0	18.0	18.0
Rated rotation speed[r/min]		3000	3000	3000
Maximum rotation speed[r/min]		3500	4000	4000
Maximum current[A]		64.0	79.6	116.0
Maximum torque[N・m]		65.0	75.0	90.0
Power rate at continuous rated torque[kW/s]		16.5	16.5	16.5
Max. deceleration torque of dynamic brake(Tdp)[N・m]		35.25	35.25	35.25
Motor inertia[$\times 10^{-4}$ kg•m^2]		75.0	75.0	75.0
(Brake inertia)[$\times 10^{-4}$ kg•m^2]		84.7	84.7	84.7
Maximum motor shaft conversion load inertia ratio	High-speed, high-accuracy machine[$\times 10^{-4}$ kg•m^2]	225.0	225.0	225.0
	General machine tool (interpolation axis)[$\times 10^{-4}$ kg•m^2]	375.0	375.0	375.0
	Non-interpolation axis [$\times 10^{-4}$ kg•m^2]	525.0	525.0	525.0
Mass	(Without) [kg]	19.0	19.0	19.0
	(With brake)[kg]	25	25	25
Heat-resistant class		155(F)	155(F)	155(F)
Degree of protection		IP67 (The shaft-through portion is excluded.)		
Quakeproof level[m/s^2] ([G])		X:24.5(2.5),Y:29.4(3)		
Axis tolerable load (Taper shaft)	Radial load (*2)[N] ([mm])	-	-	-
	Thrust load[N]	-	-	-
Axis tolerable load (Straight shaft)	Radial load (*2)[N] ([mm])	2058 (L=79)	2058 (L=79)	2058 (L=79)
	Thrust load[N]	980	980	980
Oil level (*3)[mm]		30	30	30
Absolute position encoder	16,000,000 p/rev (A74N)	-		MDS-D-V1/V2
	1,000,000 p/rev (A51)	MDS-D-SVJ3	MDS-DM	MDS-D-V1/V2
	260,000 p/rev (A48)	MDS-D-SVJ3	MDS-DM	MDS-D-V1/V2

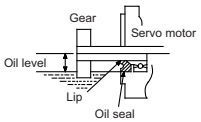
(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)



L : Length from flange installation surface to center of load weight [mm]

(*3)



Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C (with no freezing) Storage: -15°C to +70°C (with no freezing)
Ambient humidity	Operation:80% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Magnetic brake characteristics

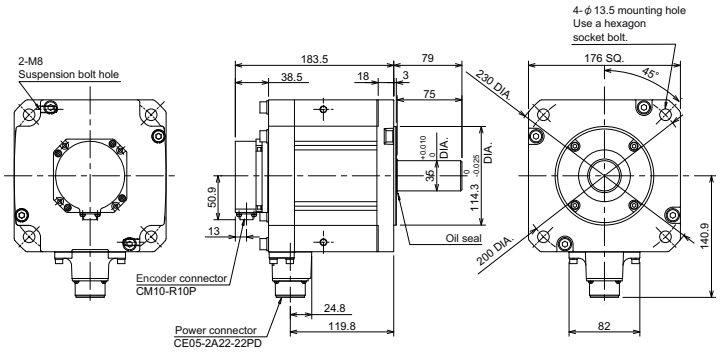
Item	Specifications
Rated voltage	24VDC
Rated current at 20°C[A]	1.4
Static friction torque[N・m]	43.1
Release delay time (*1)[s]	0.1
Braking delay time (DC OFF) (*1)[s]	0.03
Brake life (*2)[times]	20,000

(*1) This is the representative value for the initial attraction gap at 20°C.

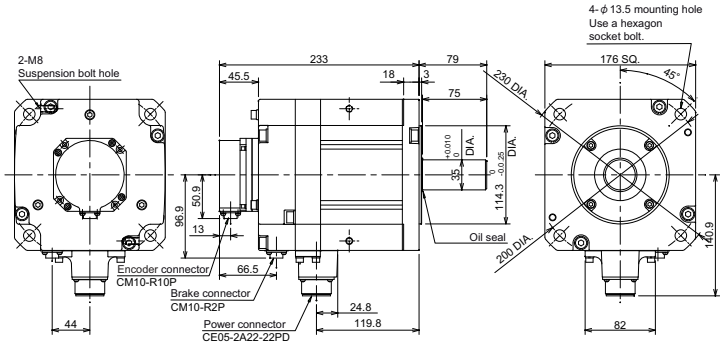
(*2) The brake gap will widen through brake lining wear caused by braking. However, the gap cannot be adjusted. Thus, the brake life is considered to be reached when adjustments are required.

Outline dimension drawings [Unit : mm]

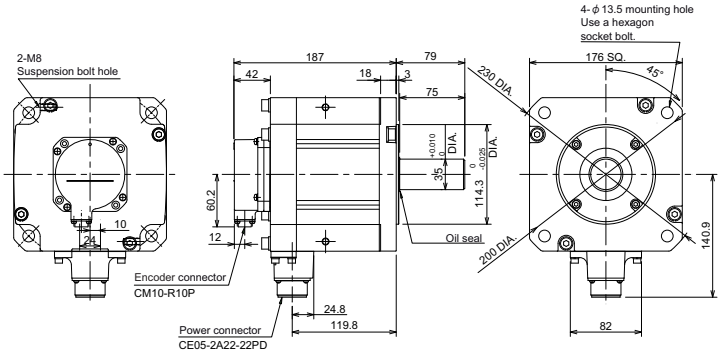
HF354S-A48



HF354BS-A48



HF354S-A51,-A74N



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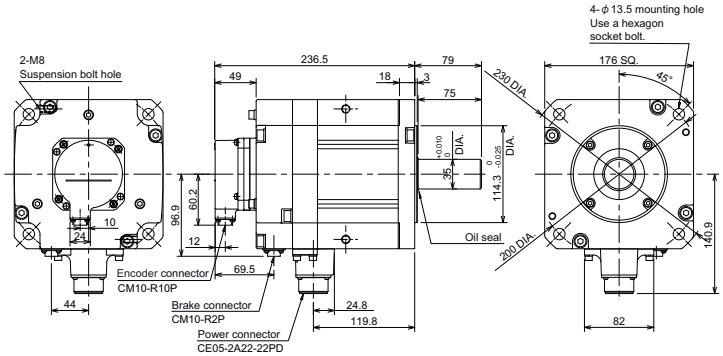
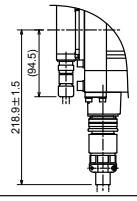
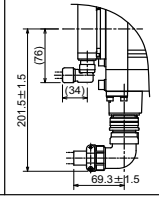
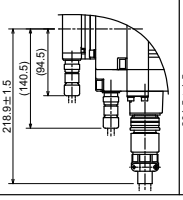
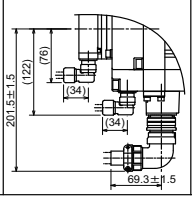
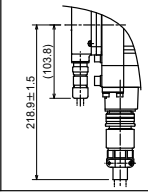
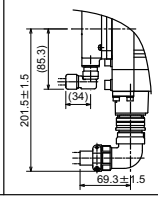
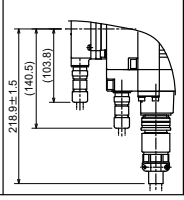
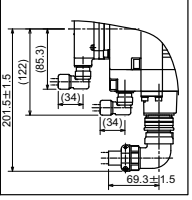
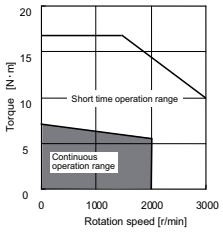


A48				A51/A74N			
Without brake		With brake		Without brake		With brake	
Straight plug	Right angle plug	Straight plug	Right angle plug	Straight plug	Right angle plug	Straight plug	Right angle plug
							

Stall torque	Rated rotation speed	Servo motor type	Explanation of type		
7.0N・m	2000r/min	HF123 ☐☐ -xxx (1)(2) (3)	(1) Magnetic brake	B	with brake
				None	without brake
			(2) Shaft end	S	Straight
				T	Taper
			(3) Encoder	XXX	Type

Torque characteristics

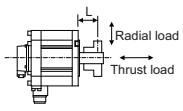


Specifications

Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-D-V1-20
	2-axis type	MDS-D-V2-2020 (L,M) MDS-D-V2-4020 (M)
	3-axis type	MDS-DM-V3-202020 (L,M,S) MDS-DM-V3-404040 (L,M,S)
	Multi axis integrated type	-
	Regenerative resistor type	MDS-D-SVJ3-10/10NA
Continuous characteristics	Rated output[kW]	1.2
	Rated current[A]	5.2
	Rated torque[N・m]	5.7
	Stall current[A]	6.4
	Stall torque[N・m]	7.0
Maximum momentary output (For power supply selection)[kW]		4.0
Rated rotation speed[r/min]		2000
Maximum rotation speed[r/min]		3000
Maximum current[A]		15.5
Maximum torque[N・m]		17.0
Power rate at continuous rated torque[kW/s]		27.3
Max. deceleration torque of dynamic brake(Tdp)[N・m]		9.79
Motor inertia[$\times 10^{-4}$ kg•m^2]		11.9
(Brake inertia)[$\times 10^{-4}$ kg•m^2]		14.1
Maximum motor shaft conversion load inertia ratio	High-speed, high-accuracy machine[$\times 10^{-4}$ kg•m^2]	35.7
	General machine tool (interpolation axis)[$\times 10^{-4}$ kg•m^2]	59.5
	Non-interpolation axis [$\times 10^{-4}$ kg•m^2]	83.3
Mass	(Without) [kg]	6.5
	(With brake)[kg]	8.5
Heat-resistant class		155(F)
Degree of protection		IP67 (The shaft-through portion is excluded.)
Quakeproof level[m/s^2] ([G])		X:24.5(2.5),Y:24.5(2.5)
Axis tolerable load (Taper shaft)	Radial load (*2)[N] ([mm])	392 (L=58)
	Thrust load[N]	490
Axis tolerable load (Straight shaft)	Radial load (*2)[N] ([mm])	980 (L=55)
	Thrust load[N]	490
Oil level (*3)[mm]		22.5
Absolute position encoder	16,000,000 p/rev (A74N)	MDS-D-V1/V2
	1,000,000 p/rev (A51)	MDS-D-V1/V2 MDS-DM, MDS-D-SVJ3
	260,000 p/rev (A48)	MDS-D-V1/V2 MDS-DM, MDS-D-SVJ3

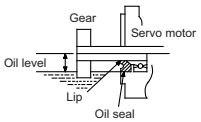
(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)



L : Length from flange installation surface to center of load weight [mm]

(*3)



Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C (with no freezing) Storage: -15°C to +70°C (with no freezing)
Ambient humidity	Operation:80% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Magnetic brake characteristics

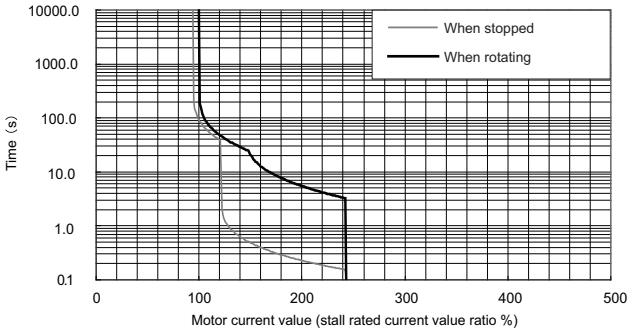
Item	Specifications
Rated voltage	24VDC
Rated current at 20°C[A]	0.8
Static friction torque[N・m]	8.3
Release delay time (*1)[s]	0.04
Braking delay time (DC OFF) (*1)[s]	0.03
Brake life (*2)[times]	20,000

(*1) This is the representative value for the initial attraction gap at 20°C.

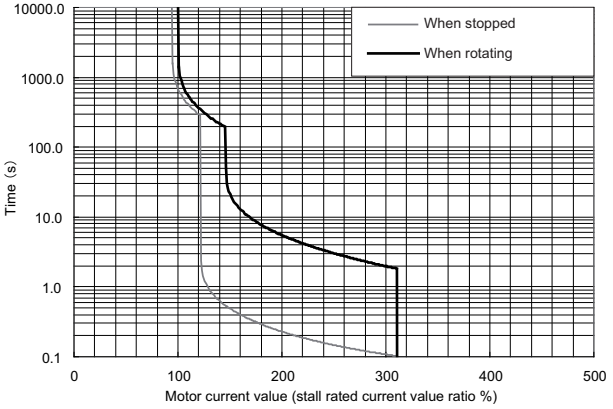
(*2) The brake gap will widen through brake lining wear caused by braking. However, the gap cannot be adjusted. Thus, the brake life is considered to be reached when adjustments are required.

Servo overload protection characteristics

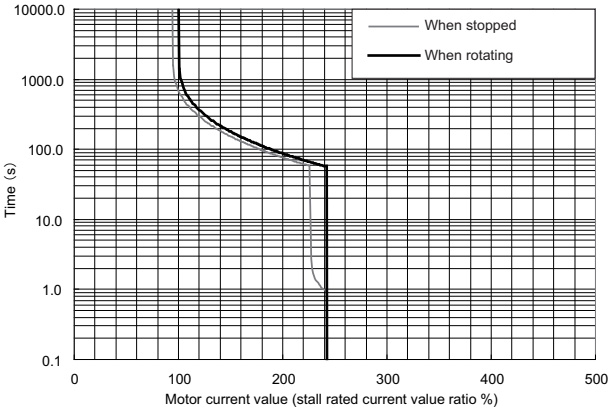
D series



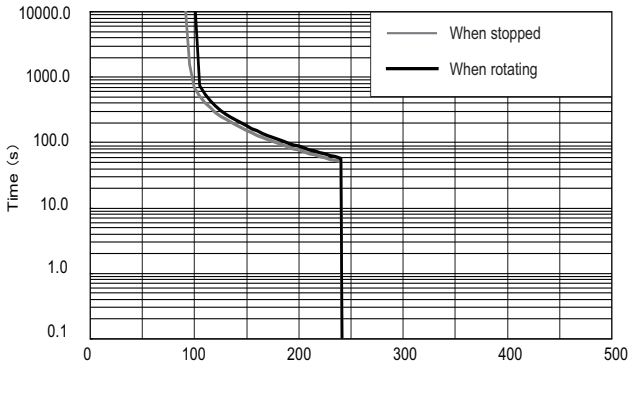
MDS-DM-V3-202020



MDS-DM-V3-404040

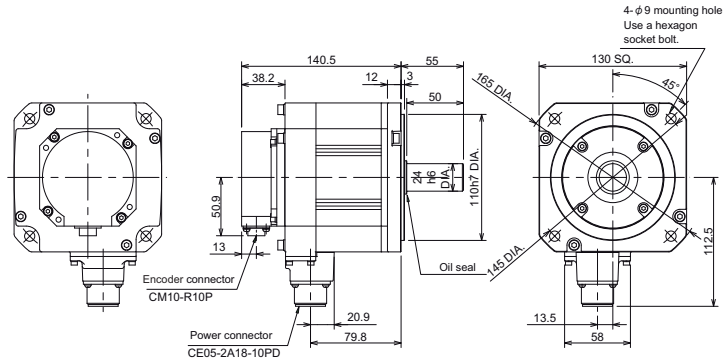


SVJ3 series

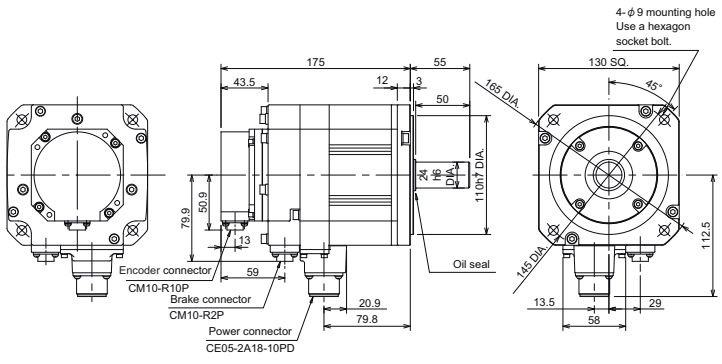


Outline dimension drawings [Unit : mm]

HF123S-A48



HF123BS-A48



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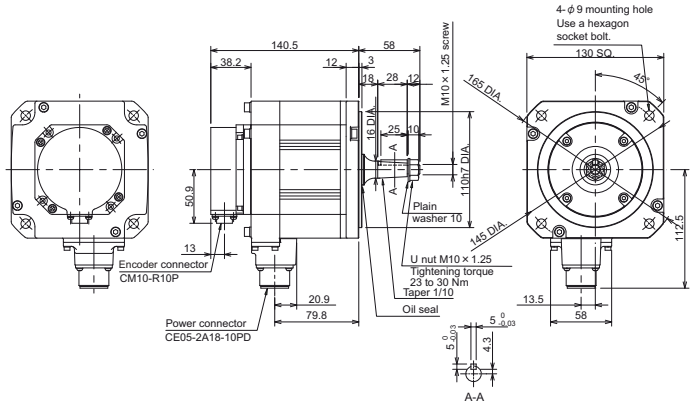
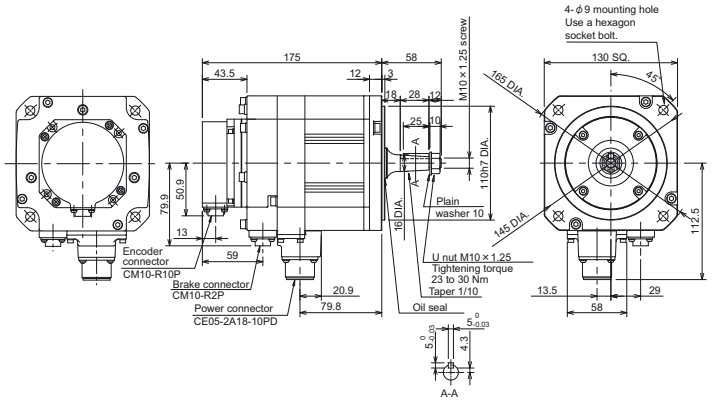


HF123BT-A48



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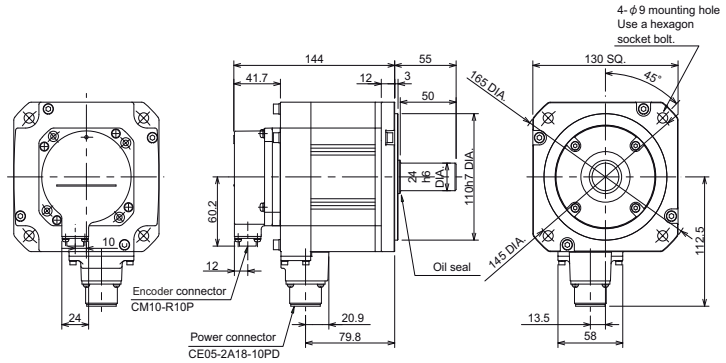

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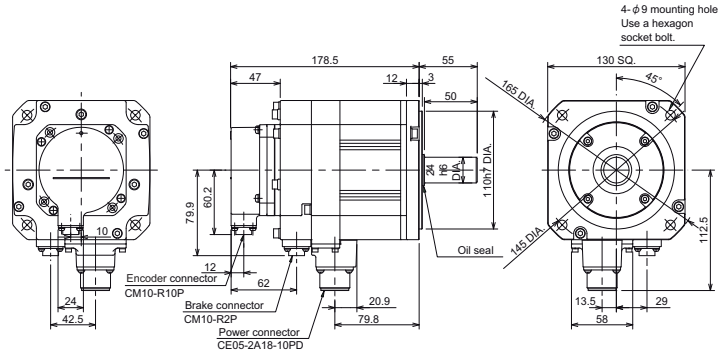

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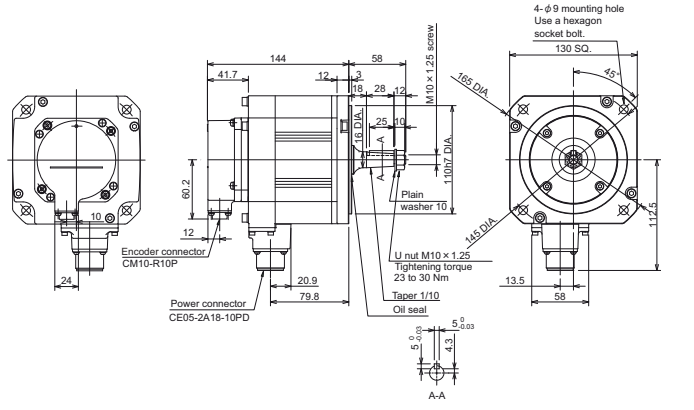

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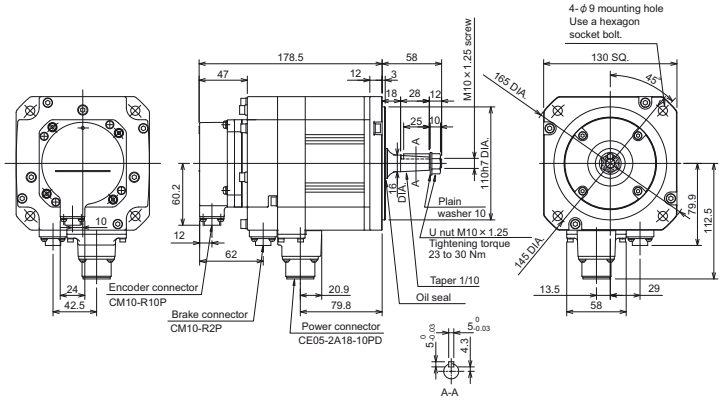
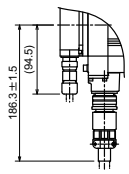
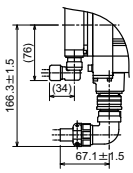
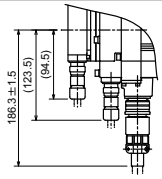
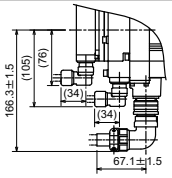
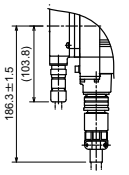
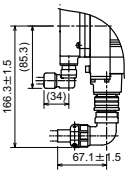
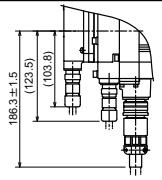
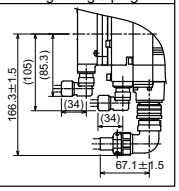
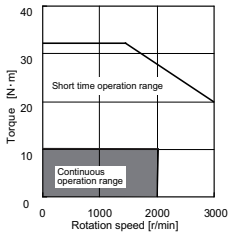


A48				A51/A74N			
Without brake		With brake		Without brake		With brake	
Straight plug	Right angle plug	Straight plug	Right angle plug	Straight plug	Right angle plug	Straight plug	Right angle plug
							

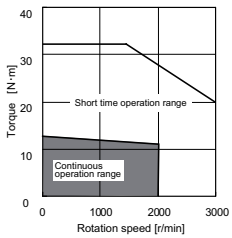
Stall torque	Rated rotation speed	Servo motor type	Explanation of type		
12.0N・m	2000r/min	HF223 ☐☐ -xxx (1)(2) (3)	(1) Magnetic brake	B	with brake
				None	without brake
			(2) Shaft end	S	Straight
				T	Taper
			(3) Encoder	XXX	Type

Torque characteristics

MDS-DM-V3-404040(M,S)



D,DM,SVJ3 series

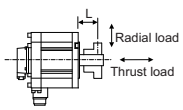


Specifications

Item		Specifications	
Compatible drive unit (*1)	1-axis type	-	MDS-D-V1-40
	2-axis type	-	MDS-D-V2-4020 (L) MDS-D-V2-4040 (L,M) MDS-D-V2-8040 (M)
	3-axis type	MDS-DM-V3-404040 (M,S)	MDS-DM-V3-404040 (L)
	Multi axis integrated type	-	MDS-DM-SPV3/SPV3F (L,M,S) MDS-DM-SPV2/SPV2F (L,M)
	Regenerative resistor type	-	MDS-D-SVJ3-10/10NA
Continuous characteristics	Rated output[kW]	2.1	2.2
	Rated current[A]	8.5	9.0
	Rated torque[N・m]	10.0	10.5
	Stall current[A]	8.5	11
	Stall torque[N・m]	10.0	12.0
Maximum momentary output (For power supply selection)[kW]		7.5	7.5
Rated rotation speed[r/min]		2000	2000
Maximum rotation speed[r/min]		3000	3000
Maximum current[A]		29.0	29.0
Maximum torque[N・m]		32.0	32.0
Power rate at continuous rated torque[kW/s]		46.5	46.5
Max. deceleration torque of dynamic brake(Tdp)[N・m]		19.95	19.95
Motor inertia[$\times 10^{-4}$ kg•m^2]		23.7	23.7
(Brake inertia)[$\times 10^{-4}$ kg•m^2]		25.9	25.9
Maximum motor shaft conversion load inertia ratio	High-speed, high-accuracy machine[$\times 10^{-4}$ kg•m^2]	71.1	71.1
	General machine tool (interpolation axis)[$\times 10^{-4}$ kg•m^2]	118.5	118.5
	Non-interpolation axis [$\times 10^{-4}$ kg•m^2]	165.9	165.9
Mass	(Without) [kg]	10.0	10.0
	(With brake)[kg]	12.0	12.0
Heat-resistant class		155(F)	155(F)
Degree of protection		IP67 (The shaft-through portion is excluded.)	IP67 (The shaft-through portion is excluded.)
Quakeproof level[m/s^2] ([G])		X:24.5(2.5),Y:24.5(2.5)	X:24.5(2.5),Y:24.5(2.5)
Axis tolerable load (Taper shaft)	Radial load (*2)[N] ([mm])	392 (L=58)	392 (L=58)
	Thrust load[N]	490	490
Axis tolerable load (Straight shaft)	Radial load (*2)[N] ([mm])	980 (L=55)	980 (L=55)
	Thrust load[N]	490	490
Oil level (*3)[mm]		22.5	22.5
Absolute position encoder	16,000,000 p/rev (A74N)	-	MDS-D-V1/V2
	1,000,000 p/rev (A51)	MDS-DM	MDS-D/DM, MDS-D-SVJ3
	260,000 p/rev (A48)	MDS-DM	MDS-D/DM, MDS-D-SVJ3

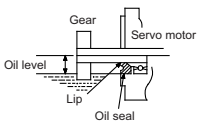
(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)



L : Length from flange installation surface to center of load weight [mm]

(*3)



Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C (with no freezing) Storage: -15°C to +70°C (with no freezing)
Ambient humidity	Operation:80% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Magnetic brake characteristics

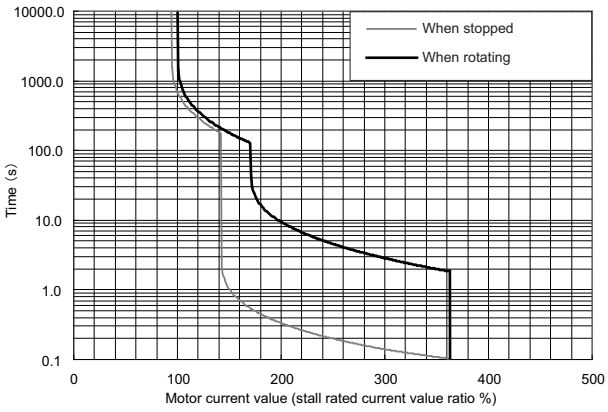
Item	Specifications
Rated voltage	24VDC
Rated current at 20°C[A]	0.8
Static friction torque[N・m]	8.3
Release delay time (*1)[s]	0.04
Braking delay time (DC OFF) (*1)[s]	0.03
Brake life (*2)[times]	20,000

(*1) This is the representative value for the initial attraction gap at 20°C.

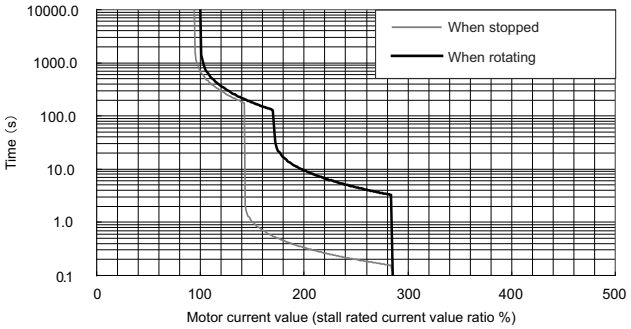
(*2) The brake gap will widen through brake lining wear caused by braking. However, the gap cannot be adjusted. Thus, the brake life is considered to be reached when adjustments are required.

Servo overload protection characteristics

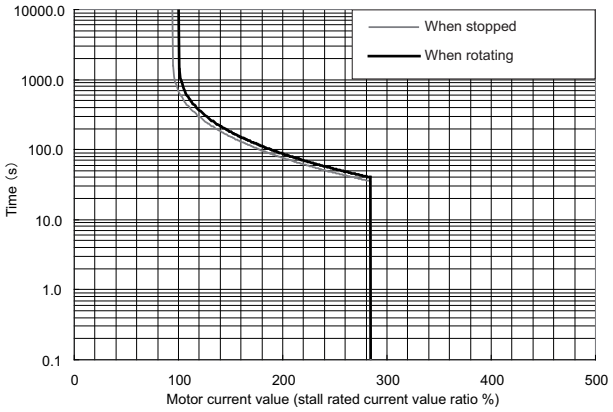
MDS-DM-V3-404040



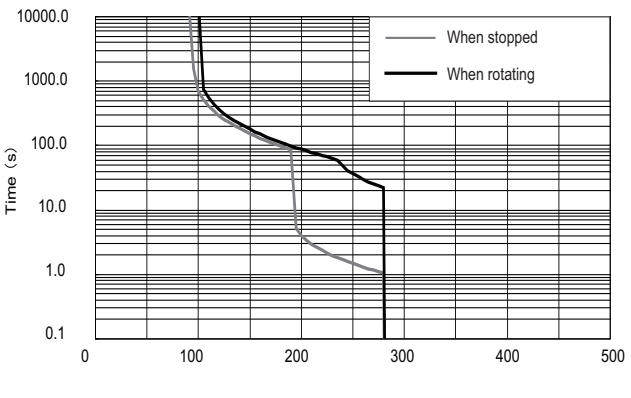
D series



MDS-DM-SPV series

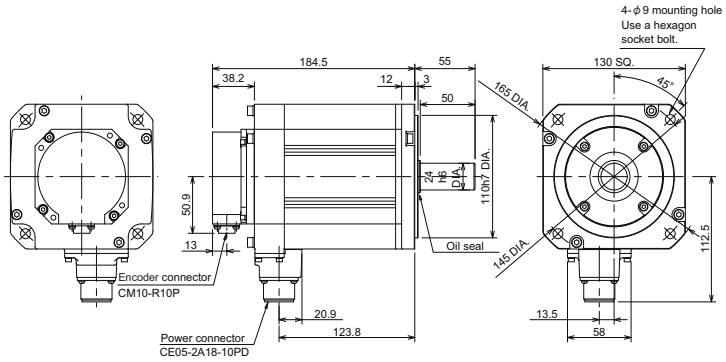


SVJ3 series



Outline dimension drawings [Unit : mm]

HF223S-A48



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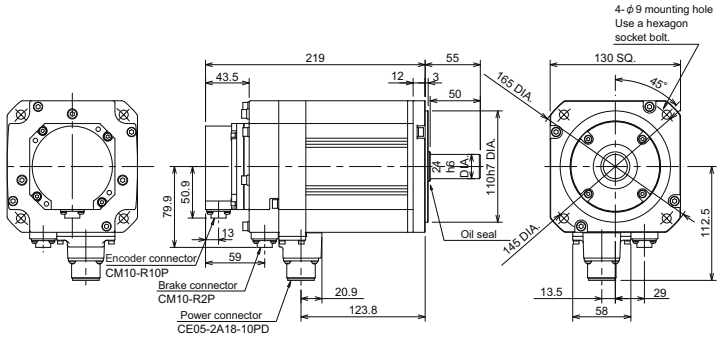

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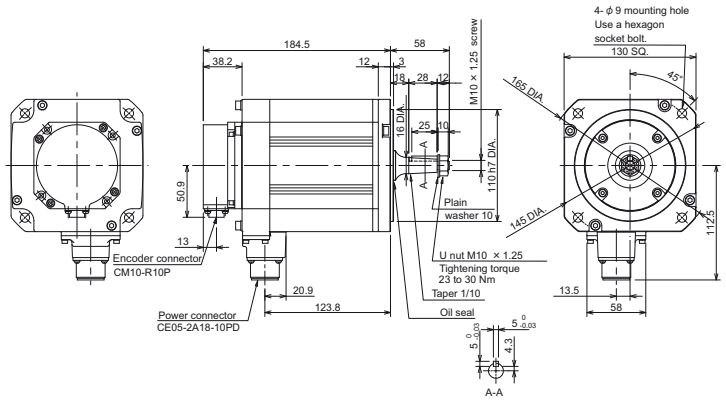

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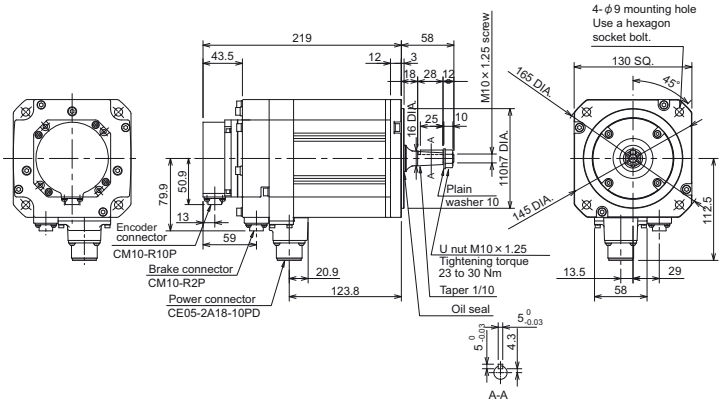
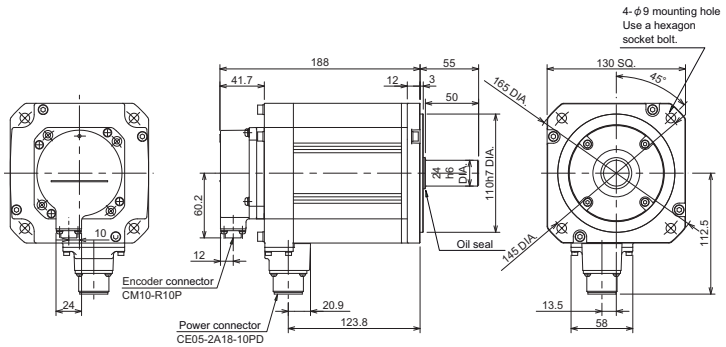


HF223S-A51,-A74N



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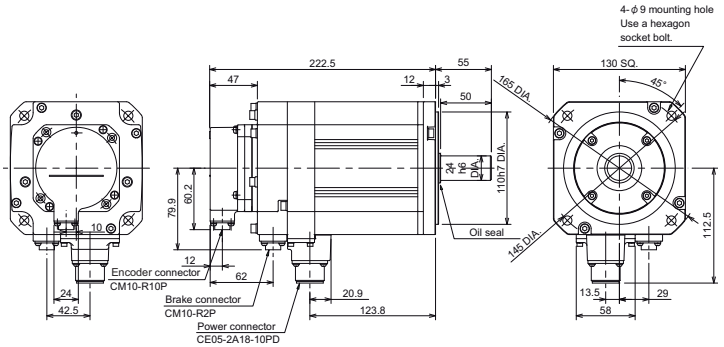

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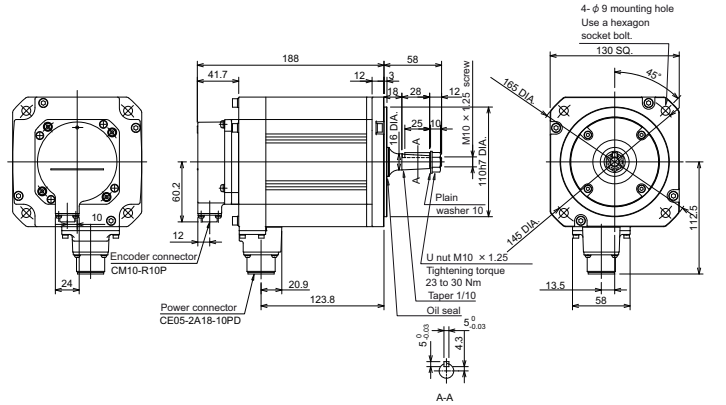

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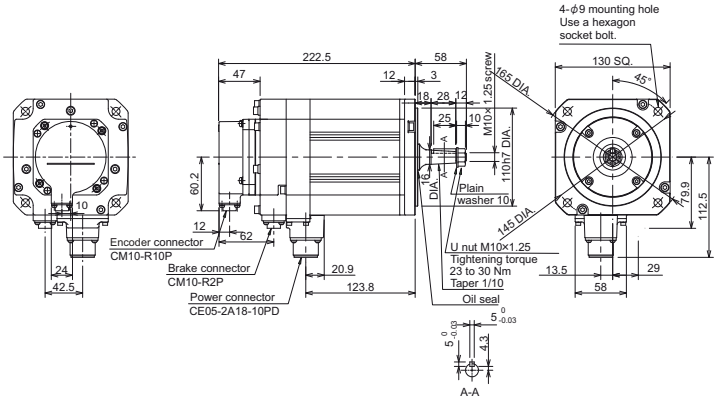
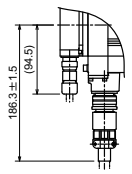
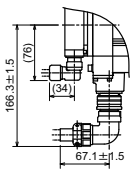
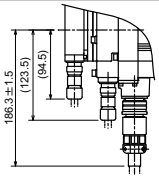
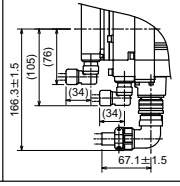
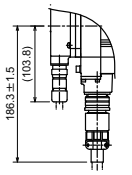
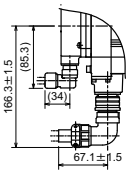
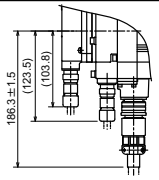
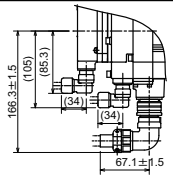
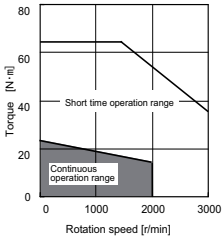


A48				A51/A74N			
Without brake		With brake		Without brake		With brake	
Straight plug	Right angle plug	Straight plug	Right angle plug	Straight plug	Right angle plug	Straight plug	Right angle plug
							

Stall torque	Rated rotation speed	Servo motor type	Explanation of type		
22.5N・m	2000r/min	HF303 ☐ S-xxx (1) (2)	(1) Magnetic brake	B	with brake
				None	without brake
			(2) Encoder	XXX	Type

Torque characteristics

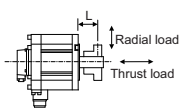


Specifications

Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-D-V1-80
	2-axis type	MDS-D-V2-8040 (L) MDS-D-V2-8080 (L,M) MDS-D-V2-16080 (M)
	3-axis type	-
	Multi axis integrated type	MDS-DM-SPV3/SPV3F (L,M,S) MDS-DM-SPV2/SPV2F (L,M)
	Regenerative resistor type	MDS-D-SVJ3-20/20NA
Continuous characteristics	Rated output[kW]	3.0
	Rated current[A]	11
	Rated torque[N・m]	14.3
	Stall current[A]	16
	Stall torque[N・m]	22.5
Maximum momentary output (For power supply selection)[kW]		12.0
Rated rotation speed[r/min]		2000
Maximum rotation speed[r/min]		3000
Maximum current[A]		48.0
Maximum torque[N・m]		64.0
Power rate at continuous rated torque[kW/s]		27.3
Max. deceleration torque of dynamic brake(Tdp)[N・m]		30.43
Motor inertia[$\times 10^{-4}$ kg•m^2]		75.0
(Brake inertia)[$\times 10^{-4}$ kg•m^2]		84.7
Maximum motor shaft conversion load inertia ratio	High-speed, high-accuracy machine[$\times 10^{-4}$ kg•m^2]	225
	General machine tool (interpolation axis)[$\times 10^{-4}$ kg•m^2]	375
	Non-interpolation axis [$\times 10^{-4}$ kg•m^2]	525
Mass	(Without) [kg]	19.0
	(With brake)[kg]	25.0
Heat-resistant class		155(F)
Degree of protection		IP67 (The shaft-through portion is excluded.)
Quakeproof level[m/s^2] ([G])		X:24.5(2.5),Y:29.4(3)
Axis tolerable load (Taper shaft)	Radial load (*2)[N] ([mm])	-
	Thrust load[N]	-
Axis tolerable load (Straight shaft)	Radial load (*2)[N] ([mm])	2058 (L=79)
	Thrust load[N]	980
Oil level (*3)[mm]		30
Absolute position encoder	16,000,000 p/rev (A74N)	MDS-D-V1/V2
	1,000,000 p/rev (A51)	MDS-D-V1/V2 MDS-DM, MDS-D-SVJ3
	260,000 p/rev (A48)	MDS-D-V1/V2 MDS-DM, MDS-D-SVJ3

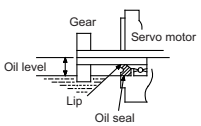
(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)



L : Length from flange installation surface to center of load weight [mm]

(*3)



Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C (with no freezing) Storage: -15°C to +70°C (with no freezing)
Ambient humidity	Operation:80% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Magnetic brake characteristics

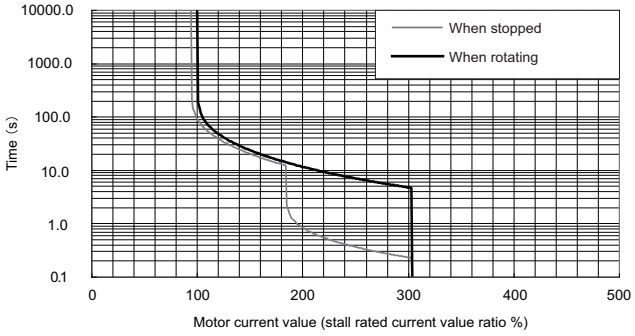
Item	Specifications
Rated voltage	24VDC
Rated current at 20°C[A]	1.4
Static friction torque[N・m]	43.1
Release delay time (*1)[s]	0.1
Braking delay time (DC OFF) (*1)[s]	0.03
Brake life (*2)[times]	20,000

(*1) This is the representative value for the initial attraction gap at 20°C.

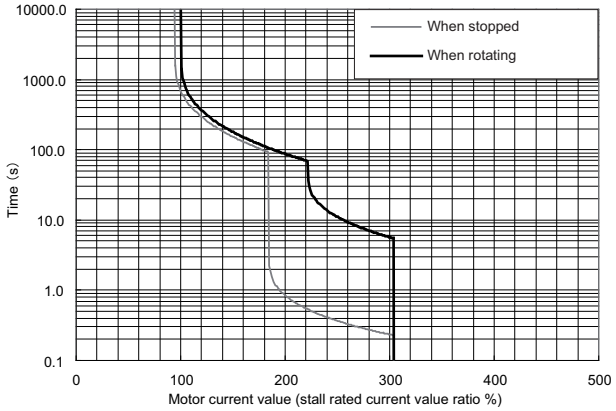
(*2) The brake gap will widen through brake lining wear caused by braking. However, the gap cannot be adjusted. Thus, the brake life is considered to be reached when adjustments are required.

Servo overload protection characteristics

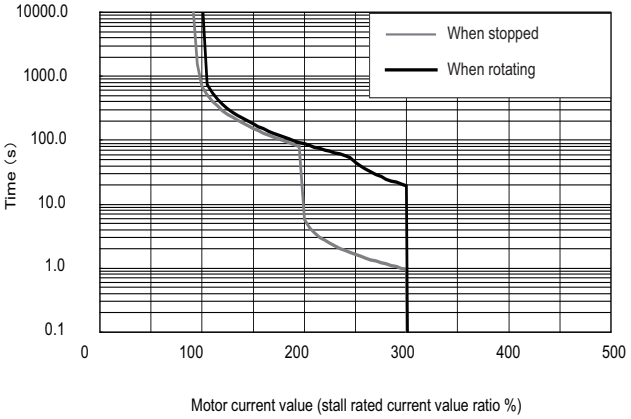
D series



MDS-DM-SPV series

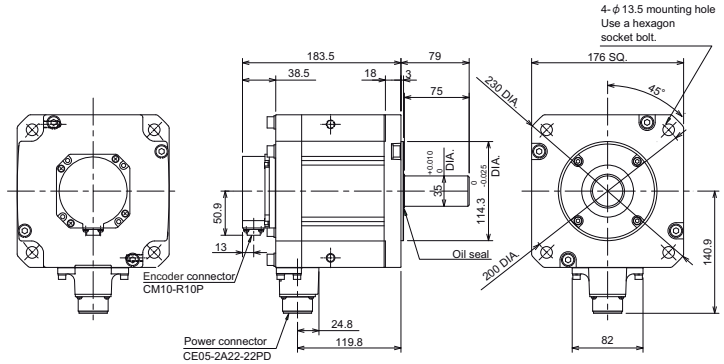


SVJ3 series



Outline dimension drawings [Unit : mm]

HF303S-A48



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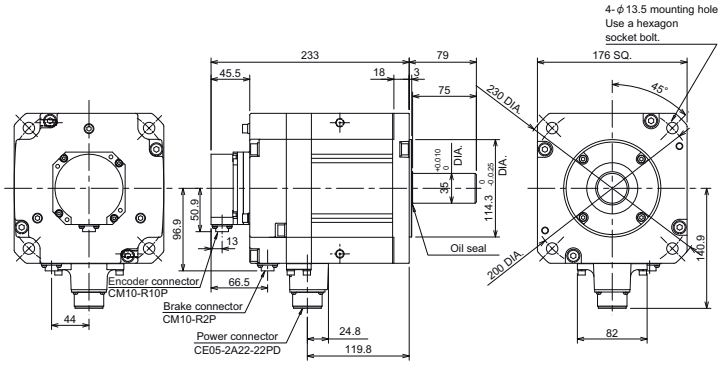
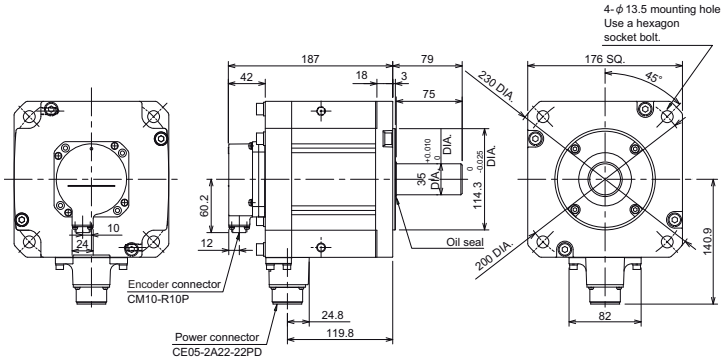
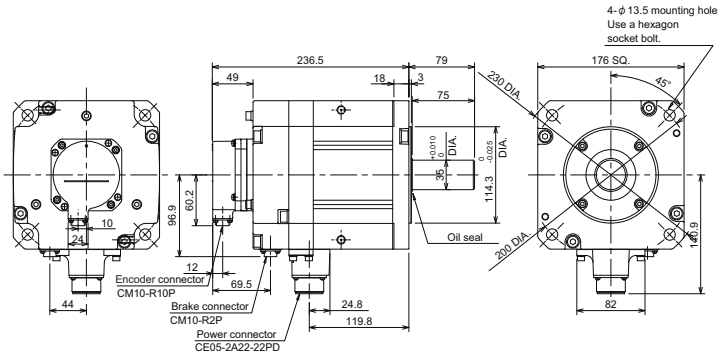
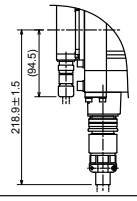
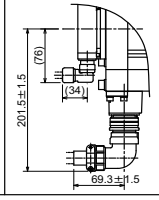
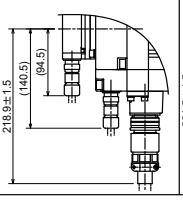
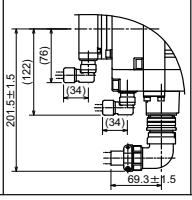
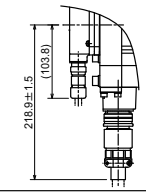
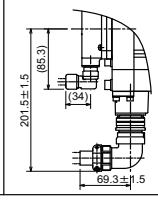
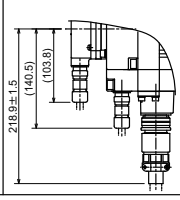
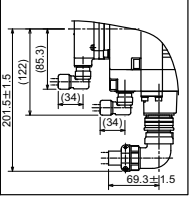


HF303S-A51,-A74N



HF303BS-A51,-A74N

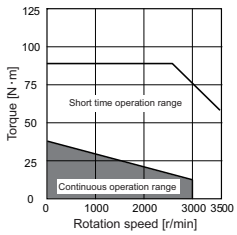


A48				A51/A74N			
Without brake		With brake		Without brake		With brake	
Straight plug	Right angle plug	Straight plug	Right angle plug	Straight plug	Right angle plug	Straight plug	Right angle plug
							

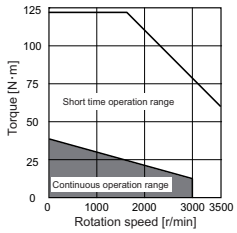
Stall torque	Rated rotation speed	Servo motor type	Explanation of type		
37.2N・m	3000r/min	HF453 ☐ S-xxx (1) (2)	(1) Magnetic brake	B	with brake
				None	without brake
			(2) Encoder	XXX	Type

Torque characteristics

DM series

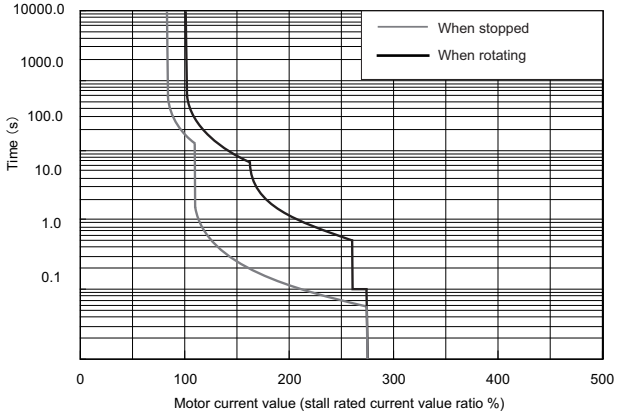


D series

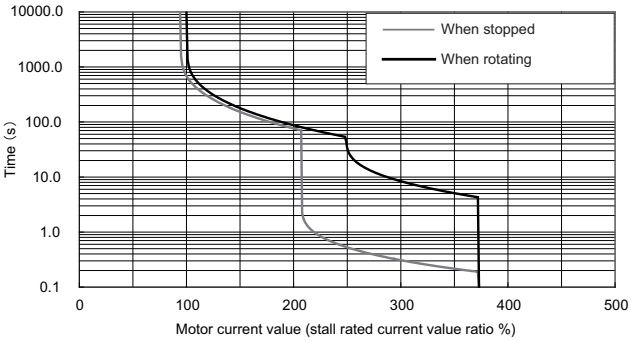


Servo overload protection characteristics

DM series



D series

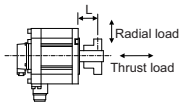


Specifications

Item		Specification	
Compatible drive unit (*1)	1-axis type	-	MDS-D-V1-160
	2-axis type	-	MDS-D-V2-16080 (L) MDS-D-V2-160160 (L,M) MDS-D-V2-160160W (L,M)
	3-axis type	-	-
	Multi axis integrated type	MDS-DM-SPV3F-200120	-
	Regenerative resistor type	-	-
Continuous characteristics	Rated output[kW]	4.5	4.5
	Rated current[A]	19	19
	Rated torque[N・m]	14.3	14.3
	Stall current[A]	28	28
	Stall torque[N・m]	37.2	37.2
Maximum momentary output (For power supply selection)[kW]		22.0	22.0
Rated rotation speed[r/min]		3000	3000
Maximum rotation speed[r/min]		3500	3500
Maximum current[A]		79.6	105.0
Maximum torque[N・m]		90.0	122.0
Power rate at continuous rated torque[kW/s]		18.3	18.3
Max. deceleration torque of dynamic brake(Tdp)[N・m]		53.01	53.01
Motor inertia[$\times 10^{-4}$ kg•m^2]		112.0	112.0
(Brake inertia)[$\times 10^{-4}$ kg•m^2]		121.7	121.7
Maximum motor shaft conversion load inertia ratio	High-speed, high-accuracy machine[$\times 10^{-4}$ kg•m^2]	336.0	336.0
	General machine tool (interpolation axis)[$\times 10^{-4}$ kg•m^2]	560.0	560.0
	Non-interpolation axis [$\times 10^{-4}$ kg•m^2]	784.0	784.0
Mass	(Without) [kg]	25	25
	(With brake)[kg]	31	31
Heat-resistant class		F (155°C)	155(F)
Degree of protection		IP67 (The shaft-through portion is excluded.)	
Quakeproof level[m/s^2] ([G])		X:24.5(2.5),Y:29.4(3)	
Axis tolerable load (Taper shaft)	Radial load (*2)[N] ([mm])	-	-
	Thrust load[N]	-	-
Axis tolerable load (Straight shaft)	Radial load (*2)[N] ([mm])	2058 (L=79)	2058 (L=79)
	Thrust load[N]	980	980
Oil level (*3)[mm]		30	30
Absolute position encoder	16,000,000 p/rev (A74N)	-	MDS-D-V1/V2
	1,000,000 p/rev (A51)	MDS-DM	MDS-D-V1/V2
	260,000 p/rev (A48)	MDS-DM	MDS-D-V1/V2

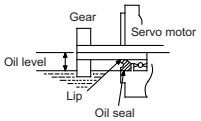
(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)



L : Length from flange installation surface to center of load weight [mm]

(*3)



Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C (with no freezing) Storage: -15°C to +70°C (with no freezing)
Ambient humidity	Operation:80% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Magnetic brake characteristics

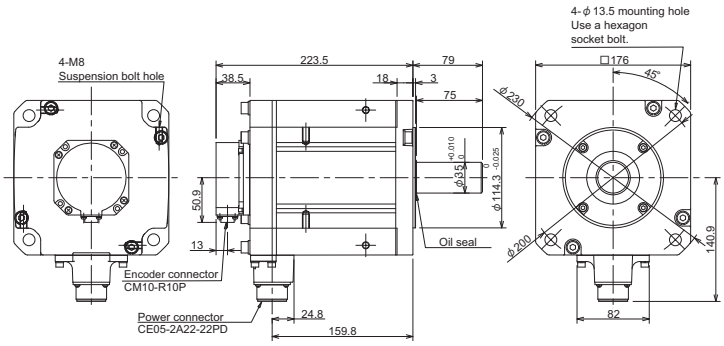
Item	Specifications
Rated voltage	24VDC
Rated current at 20°C[A]	1.4
Static friction torque[N・m]	43.1
Release delay time (*1)[s]	0.1
Braking delay time (DC OFF) (*1)[s]	0.03
Brake life (*2)[times]	20,000

(*1) This is the representative value for the initial attraction gap at 20°C.

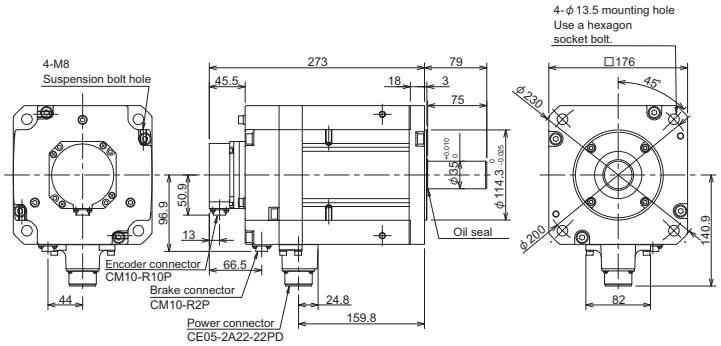
(*2) The brake gap will widen through brake lining wear caused by braking. However, the gap cannot be adjusted. Thus, the brake life is considered to be reached when adjustments are required.

Outline dimension drawings [Unit : mm]

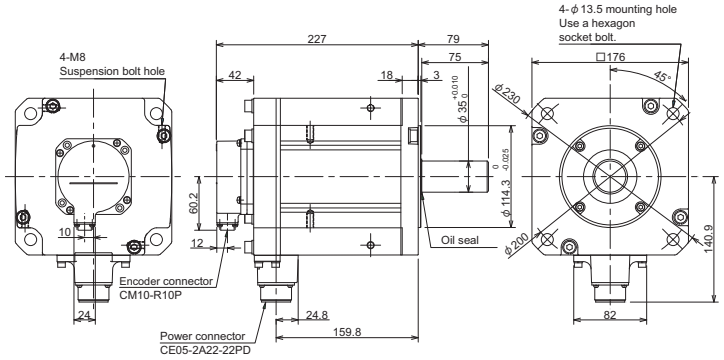
HF453S-A48



HF453BS-A48



HF453S-A51,-A74N



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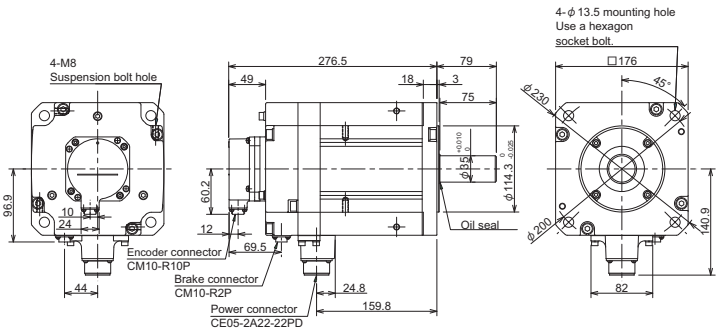
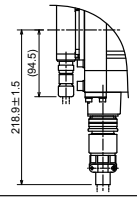
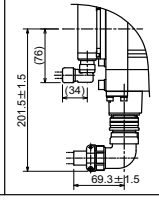
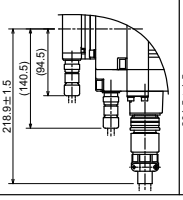
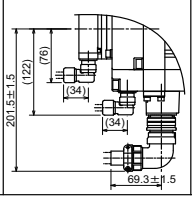
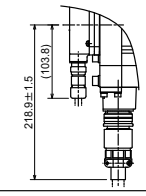
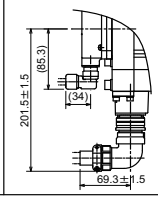
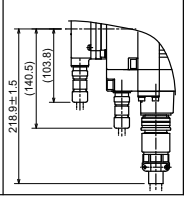
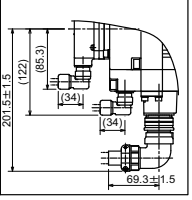
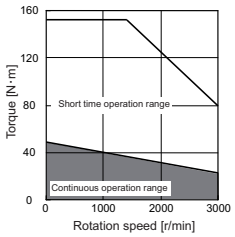


A48				A51/A74N			
Without brake		With brake		Without brake		With brake	
Straight plug	Right angle plug	Straight plug	Right angle plug	Straight plug	Right angle plug	Straight plug	Right angle plug
							

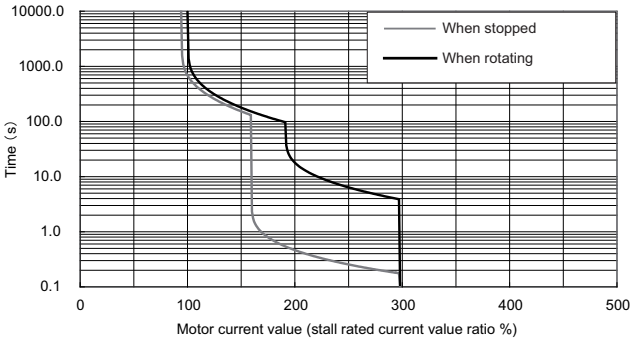
Stall torque	Rated rotation speed	Servo motor type	Explanation of type		
49.0N・m	3000r/min	HF703 ☐ S-xxx (1) (2)	(1) Magnetic brake	B	with brake
				None	without brake
			(2) Encoder	XXX	Type

Torque characteristics



Servo overload protection characteristics

D series

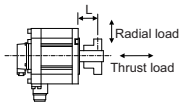


Specifications

Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-D-V1-160W
	2-axis type	MDS-D-V2-160160W (L,M)
	3-axis type	-
	Multi axis integrated type	-
	Regenerative resistor type	-
Continuous characteristics	Rated output[kW]	7.0
	Rated current[A]	34
	Rated torque[N・m]	22.3
	Stall current[A]	37
	Stall torque[N・m]	49.0
Maximum momentary output (For power supply selection)[kW]		28.0
Rated rotation speed[r/min]		3000
Maximum rotation speed[r/min]		3000
Maximum current[A]		109.0
Maximum torque[N・m]		152.0
Power rate at continuous rated torque[kW/s]		32.2
Max. deceleration torque of dynamic brake(Tdp)[N・m]		71.93
Motor inertia[$\times 10^{-4}$ kg•m^2]		154.0
(Brake inertia)[$\times 10^{-4}$ kg•m^2]		163.7
Maximum motor shaft conversion load inertia ratio	High-speed, high-accuracy machine[$\times 10^{-4}$ kg•m^2]	462.0
	General machine tool (interpolation axis)[$\times 10^{-4}$ kg•m^2]	770.0
	Non-interpolation axis [$\times 10^{-4}$ kg•m^2]	1078.0
Mass	(Without) [kg]	32.0
	(With brake)[kg]	38
Heat-resistant class		155(F)
Degree of protection		IP67 (The shaft-through portion is excluded.)
Quakeproof level[m/s^2] ([G])		X:24.5(2.5),Y:29.4(3)
Axis tolerable load (Taper shaft)	Radial load (*2)[N] ([mm])	-
	Thrust load[N]	-
Axis tolerable load (Straight shaft)	Radial load (*2)[N] ([mm])	2058 (L=79)
	Thrust load[N]	980
Oil level (*3)[mm]		30
Absolute position encoder	16,000,000 p/rev (A74N)	MDS-D-V1/V2
	1,000,000 p/rev (A51)	MDS-D-V1/V2
	260,000 p/rev (A48)	MDS-D-V1/V2

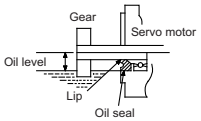
(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)



L : Length from flange installation surface to center of load weight [mm]

(*3)



Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C (with no freezing) Storage: -15°C to +70°C (with no freezing)
Ambient humidity	Operation:80% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Magnetic brake characteristics

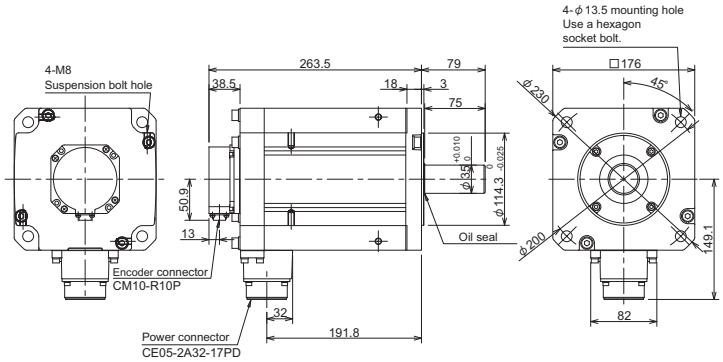
Item	Specifications
Rated voltage	24VDC
Rated current at 20°C[A]	1.4
Static friction torque[N・m]	43.1
Release delay time (*1)[s]	0.1
Braking delay time (DC OFF) (*1)[s]	0.03
Brake life (*2)[times]	20,000

(*1) This is the representative value for the initial attraction gap at 20°C.

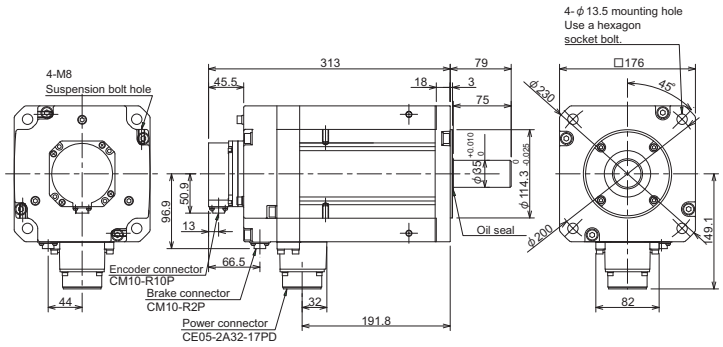
(*2) The brake gap will widen through brake lining wear caused by braking. However, the gap cannot be adjusted. Thus, the brake life is considered to be reached when adjustments are required.

Outline dimension drawings [Unit : mm]

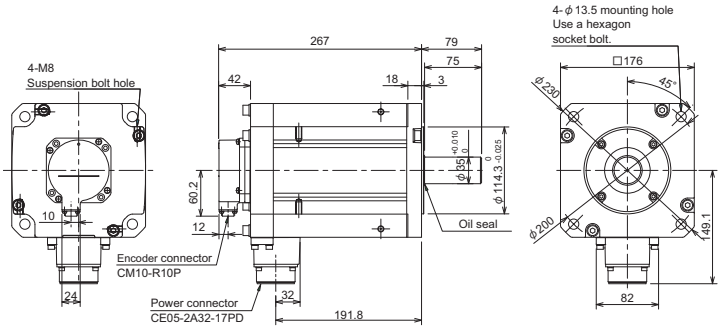
HF703S-A48



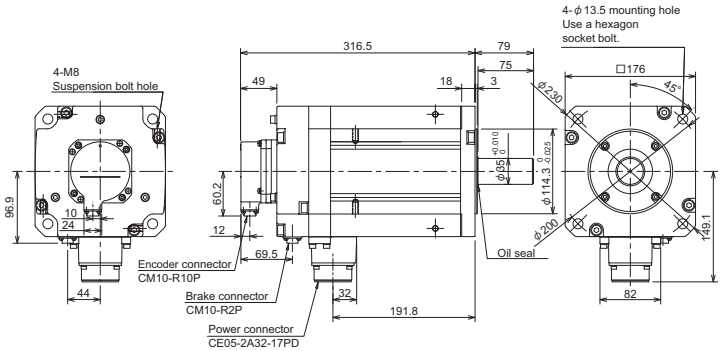
HF703BS-A48

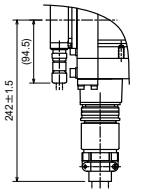
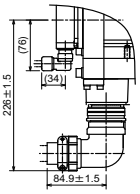
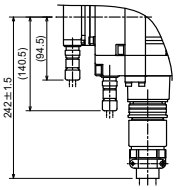
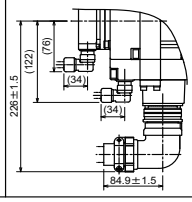
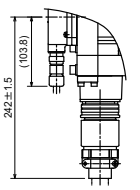
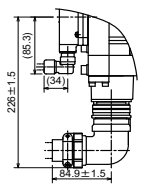
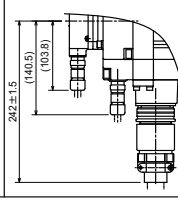
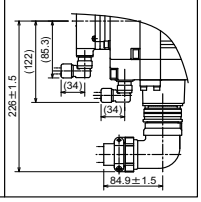


HF703S-A51,-A74N



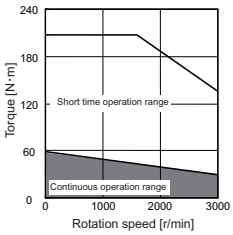
HF703BS-A51,-A74N



A48				A51/A74N			
Without brake		With brake		Without brake		With brake	
Straight plug	Right angle plug	Straight plug	Right angle plug	Straight plug	Right angle plug	Straight plug	Right angle plug
							

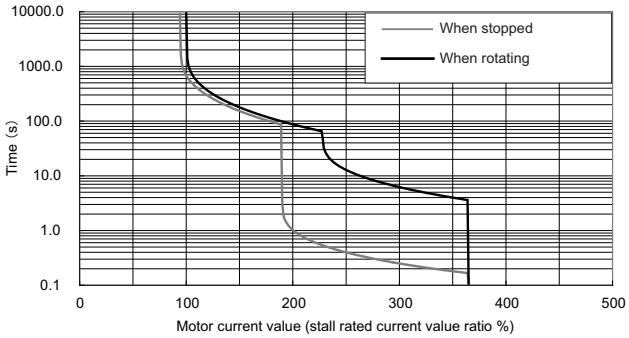
Stall torque	Rated rotation speed	Servo motor type	Explanation of type		
58.8N・m	3000r/min	HF903 ☐ S-xxx (1) (2)	(1) Magnetic brake	B	with brake
				None	without brake
			(2) Encoder	XXX	Type

Torque characteristics



Servo overload protection characteristics

D series

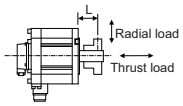


Specifications

Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-D-V1-320
	2-axis type	-
	3-axis type	-
	Multi axis integrated type	-
	Regenerative resistor type	-
Continuous characteristics	Rated output[kW]	9.0
	Rated current[A]	30
	Rated torque[N・m]	28.7
	Stall current[A]	56
	Stall torque[N・m]	58.8
Maximum momentary output (For power supply selection)[kW]		41.0
Rated rotation speed[r/min]		3000
Maximum rotation speed[r/min]		3000
Maximum current[A]		204.0
Maximum torque[N・m]		208.0
Power rate at continuous rated torque[kW/s]		42.1
Max. deceleration torque of dynamic brake(Tdp)[N・m]		89.23
Motor inertia[$\times 10^{-4}$ kg•m^2]		196.0
(Brake inertia)[$\times 10^{-4}$ kg•m^2]		205.7
Maximum motor shaft conversion load inertia ratio	High-speed, high-accuracy machine[$\times 10^{-4}$ kg•m^2]	588.0
	General machine tool (interpolation axis)[$\times 10^{-4}$ kg•m^2]	980.0
	Non-interpolation axis [$\times 10^{-4}$ kg•m^2]	1372.0
Mass	(Without) [kg]	43
	(With brake)[kg]	49
Heat-resistant class		155(F)
Degree of protection		IP67 (The shaft-through portion is excluded.)
Quakeproof level[m/s^2] ([G])		X:9.8(1), Y:9.8(1)
Axis tolerable load (Taper shaft)	Radial load (*2)[N] ([mm])	-
	Thrust load[N]	-
Axis tolerable load (Straight shaft)	Radial load (*2)[N] ([mm])	2450 (L=85)
	Thrust load[N]	980
Oil level (*3)[mm]		34
Absolute position encoder	16,000,000 p/rev (A74N)	MDS-D-V1
	1,000,000 p/rev (A51)	MDS-D-V1
	260,000 p/rev (A48)	MDS-D-V1

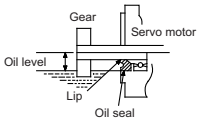
(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)



L : Length from flange installation surface to center of load weight [mm]

(*3)



Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C (with no freezing) Storage: -15°C to +70°C (with no freezing)
Ambient humidity	Operation:80% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Magnetic brake characteristics

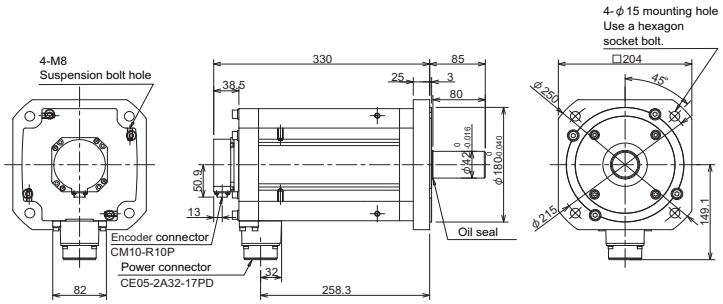
Item	Specifications
Rated voltage	24VDC
Rated current at 20°C[A]	1.4
Static friction torque[N・m]	43.1
Release delay time (*1)[s]	0.1
Braking delay time (DC OFF) (*1)[s]	0.03
Brake life (*2)[times]	20,000

(*1) This is the representative value for the initial attraction gap at 20°C.

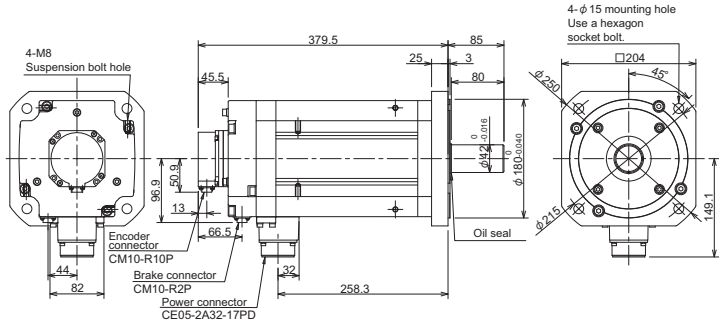
(*2) The brake gap will widen through brake lining wear caused by braking. However, the gap cannot be adjusted. Thus, the brake life is considered to be reached when adjustments are required.

Outline dimension drawings [Unit : mm]

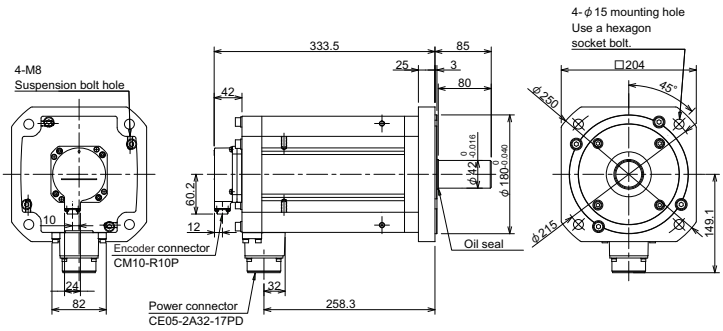
HF903S-A48



HF903BS-A48



HF903S-A51,-A74N



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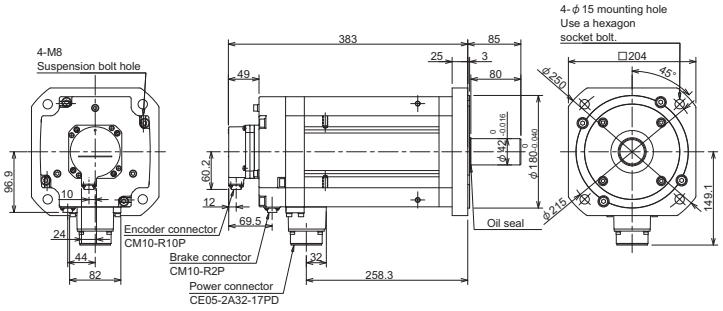
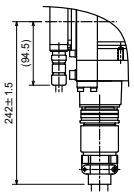
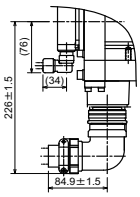
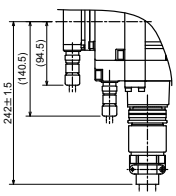
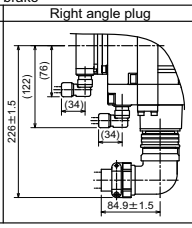
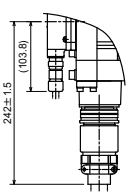
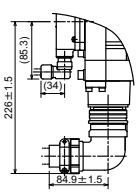
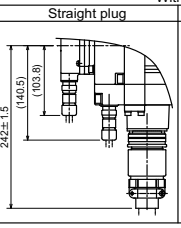
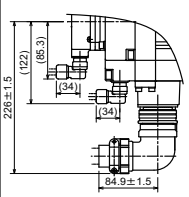
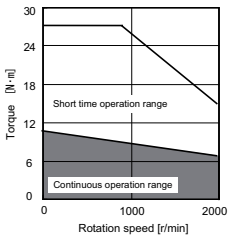


A48				A51/A74N			
Without brake		With brake		Without brake		With brake	
Straight plug	Right angle plug	Straight plug	Right angle plug	Straight plug	Right angle plug	Straight plug	Right angle plug
							

Stall torque	Rated rotation speed	Servo motor type	Explanation of type		
11.0N・m	2000r/min	HF142 ☐☐ -xxx (1)(2) (3)	(1) Magnetic brake	B	with brake
				None	without brake
			(2) Shaft end	S	Straight
				T	Taper
			(3) Encoder	XXX	Type

Torque characteristics

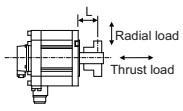


Specifications

Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-D-V1-20
	2-axis type	MDS-D-V2-2020 (L,M) MDS-D-V2-4020 (M)
	3-axis type	MDS-DM-V3-202020 (L,M,S) MDS-DM-V3-404040 (L,M,S)
	Multi axis integrated type	-
	Regenerative resistor type	MDS-D-SVJ3-10/10NA
Continuous characteristics	Rated output[kW]	1.4
	Rated current[A]	5.2
	Rated torque[N・m]	6.7
	Stall current[A]	6.4
	Stall torque[N・m]	11.0
Maximum momentary output (For power supply selection)[kW]		3.8
Rated rotation speed[r/min]		2000
Maximum rotation speed[r/min]		2000
Maximum current[A]		15.5
Maximum torque[N・m]		26.5
Power rate at continuous rated torque[kW/s]		25.2
Max. deceleration torque of dynamic brake(Tdp)[N・m]		14.43
Motor inertia[$\times 10^{-4}$ kg•m^2]		17.8
(Brake inertia)[$\times 10^{-4}$ kg•m^2]		20.0
Maximum motor shaft conversion load inertia ratio	High-speed, high-accuracy machine[$\times 10^{-4}$ kg•m^2]	53.4
	General machine tool (interpolation axis)[$\times 10^{-4}$ kg•m^2]	89
	Non-interpolation axis [$\times 10^{-4}$ kg•m^2]	124.6
Mass	(Without) [kg]	8.3
	(With brake)[kg]	11
Heat-resistant class		155(F)
Degree of protection		IP67 (The shaft-through portion is excluded.)
Quakeproof level[m/s^2] ([G])		X:24.5(2.5),Y:24.5(2.5)
Axis tolerable load (Taper shaft)	Radial load (*2)[N] ([mm])	392 (L=58)
	Thrust load[N]	490
Axis tolerable load (Straight shaft)	Radial load (*2)[N] ([mm])	980 (L=55)
	Thrust load[N]	490
Oil level (*3)[mm]		22.5
Absolute position encoder	16,000,000 p/rev (A74N)	MDS-D-V1/V2
	1,000,000 p/rev (A51)	MDS-D-V1/V2 MDS-DM, MDS-D-SVJ3
	260,000 p/rev (A48)	MDS-D-V1/V2 MDS-DM, MDS-D-SVJ3

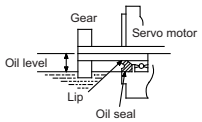
(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)



L : Length from flange installation surface to center of load weight [mm]

(*3)



Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C (with no freezing) Storage: -15°C to +70°C (with no freezing)
Ambient humidity	Operation:80% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Magnetic brake characteristics

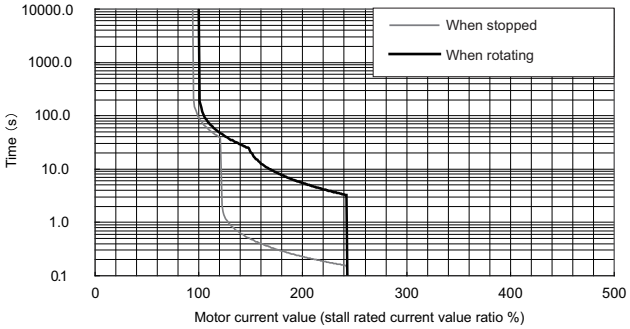
Item	Specifications
Rated voltage	24VDC
Rated current at 20°C[A]	0.8
Static friction torque[N・m]	8.3
Release delay time (*1)[s]	0.04
Braking delay time (DC OFF) (*1)[s]	0.03
Brake life (*2)[times]	20,000

(*1) This is the representative value for the initial attraction gap at 20°C.

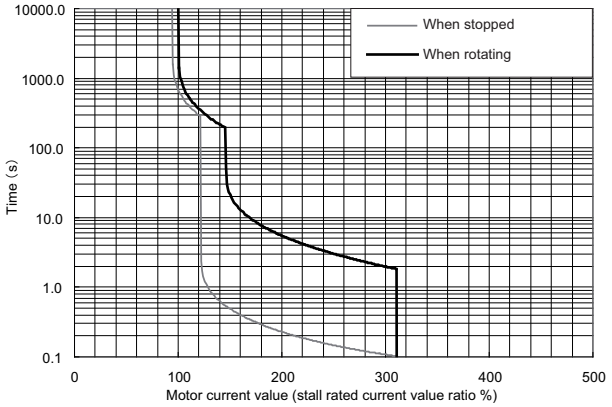
(*2) The brake gap will widen through brake lining wear caused by braking. However, the gap cannot be adjusted. Thus, the brake life is considered to be reached when adjustments are required.

Servo overload protection characteristics

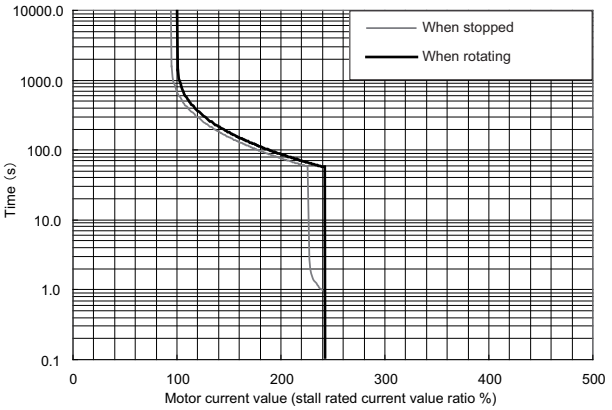
D series



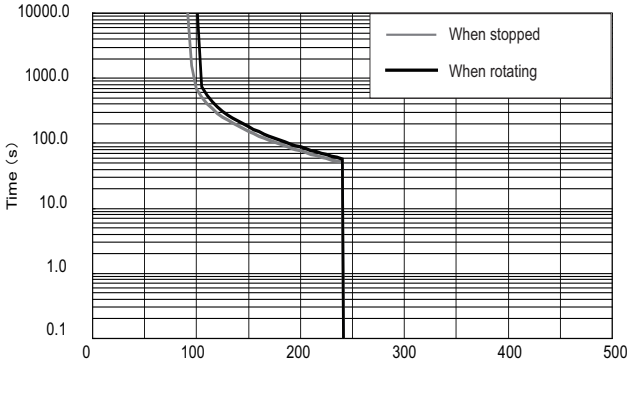
MDS-DM-V3-202020



MDS-DM-V3-404040

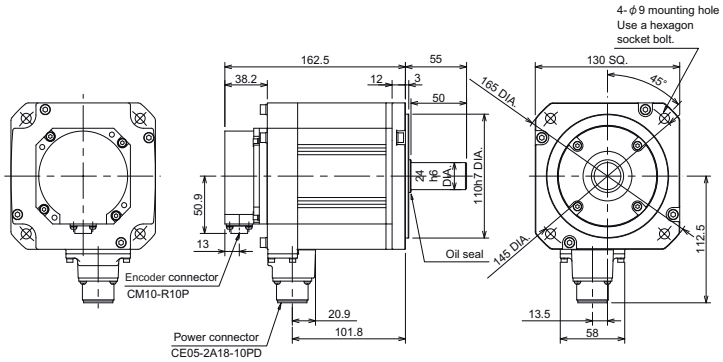


SVJ3 series



Outline dimension drawings [Unit : mm]

HF142S-A48



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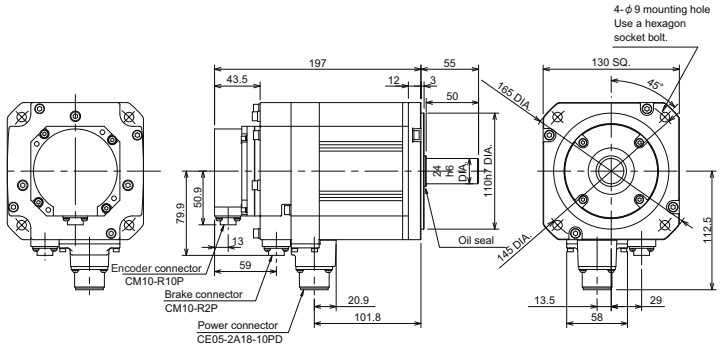
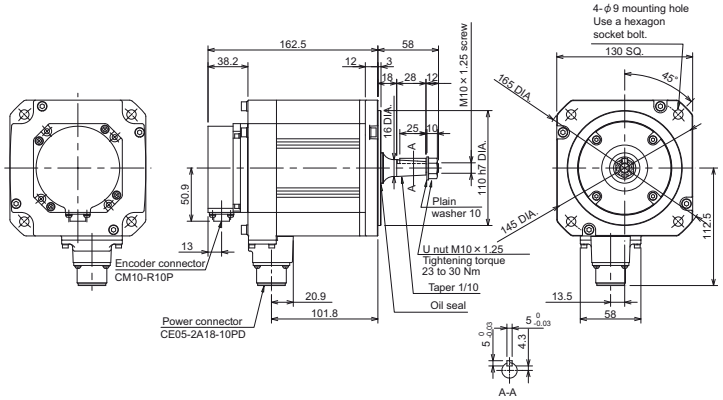


HF142T-A48



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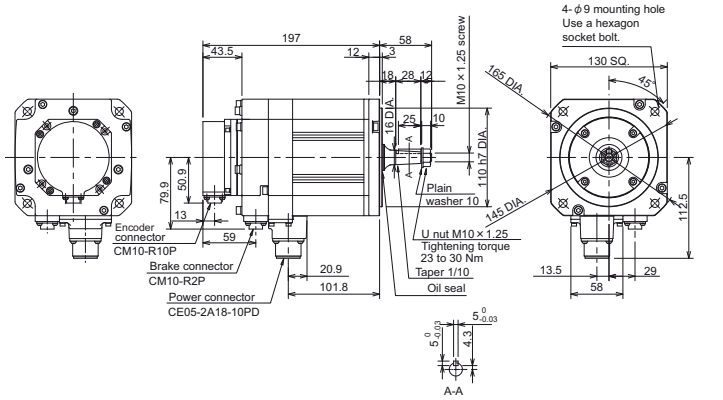
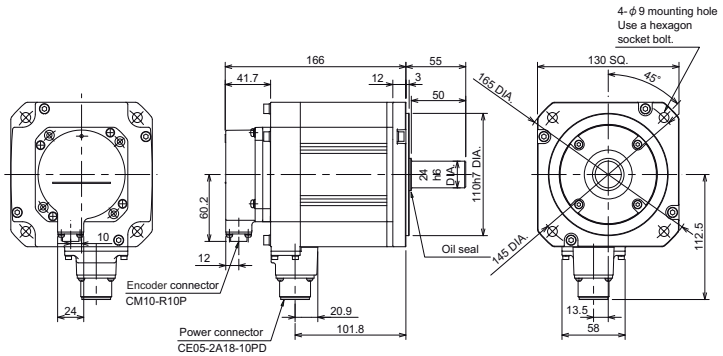


HF142S-A51,-A74N



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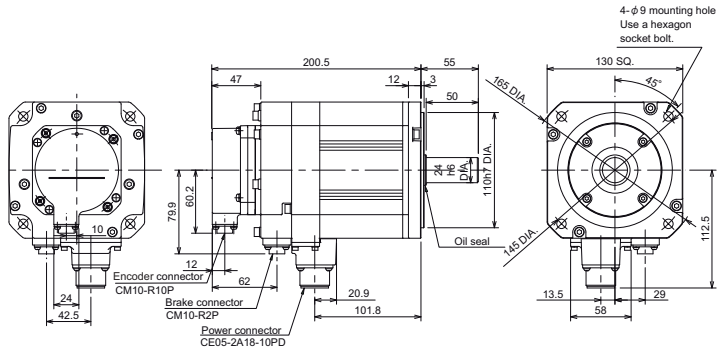

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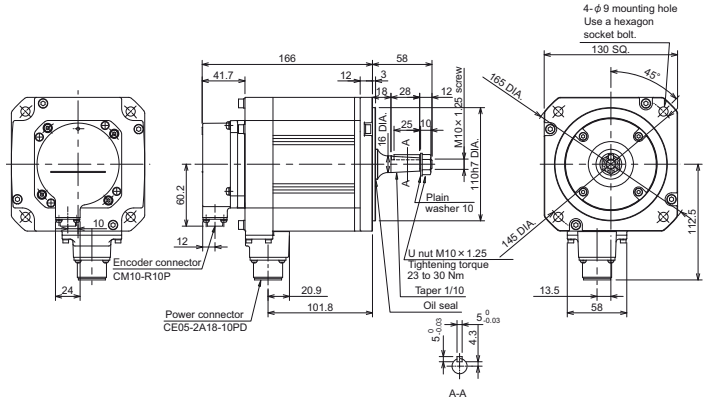

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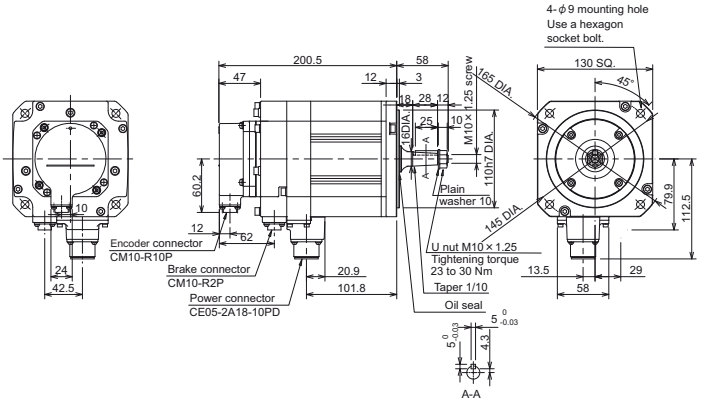
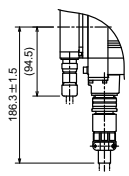
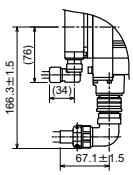
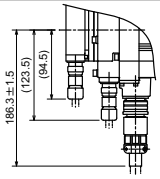
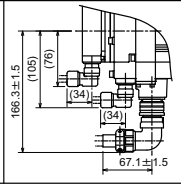
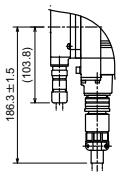
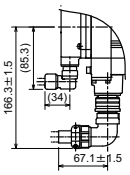
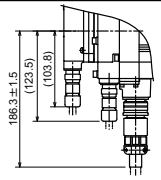
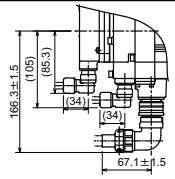
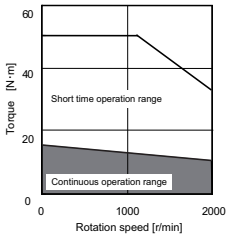


A48				A51/A74N			
Without brake		With brake		Without brake		With brake	
Straight plug	Right angle plug	Straight plug	Right angle plug	Straight plug	Right angle plug	Straight plug	Right angle plug
							

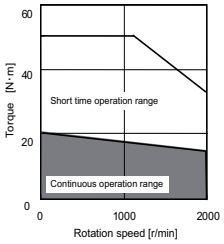
Stall torque	Rated rotation speed	Servo motor type	Explanation of type		
20.0N・m	2000r/min	HF302 □ S-xxx (1) (2)	(1) Magnetic brake	B	with brake
				None	without brake
			(2) Encoder	XXX	Type

Torque characteristics

MDS-DM-V3-404040(M,S)



D,DM,SVJ3 series

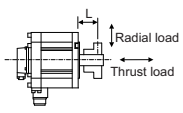


Specifications

Item		Specifications	
Compatible drive unit (*1)	1-axis type	-	MDS-D-V1-40
	2-axis type	-	MDS-D-V2-4020 (L) MDS-D-V2-4040 (L,M) MDS-D-V2-8040 (M)
	3-axis type	MDS-DM-V3-404040 (M,S)	MDS-DM-V3-404040 (L)
	Multi axis integrated type	-	MDS-DM-SPV3/SPV3F (L,M,S) MDS-DM-SPV2/SPV2F (L,M)
	Regenerative resistor type	-	MDS-D-SVJ3-10/10NA
Continuous characteristics	Rated output[kW]	2.2	3.0
	Rated current[A]	8.5	11
	Rated torque[N・m]	10.6	14.3
	Stall current[A]	8.5	11
	Stall torque[N・m]	15.6	20.0
Maximum momentary output (For power supply selection)[kW]		7.4	7.4
Rated rotation speed[r/min]		2000	2000
Maximum rotation speed[r/min]		2000	2000
Maximum current[A]		29.0	29.0
Maximum torque[N・m]		50.0	50.0
Power rate at continuous rated torque[kW/s]		27.3	27.3
Max. deceleration torque of dynamic brake(Tdp)[N・m]		29.42	29.42
Motor inertia[$\times 10^{-4}$ kg•m^2]		75.0	75.0
(Brake inertia)[$\times 10^{-4}$ kg•m^2]		84.7	84.7
Maximum motor shaft conversion load inertia ratio	High-speed, high-accuracy machine[$\times 10^{-4}$ kg•m^2]	225	225
	General machine tool (interpolation axis)[$\times 10^{-4}$ kg•m^2]	375	375
	Non-interpolation axis [$\times 10^{-4}$ kg•m^2]	525	525
Mass	(Without) [kg]	19.0	19.0
	(With brake)[kg]	25.0	25.0
Heat-resistant class		155(F)	155(F)
Degree of protection		IP67 (The shaft-through portion is excluded.)	IP67 (The shaft-through portion is excluded.)
Quakeproof level[m/s^2] ([G])		X:24.5(2.5),Y:29.4(3)	X:24.5(2.5),Y:29.4(3)
Axis tolerable load (Taper shaft)	Radial load (*2)[N] ([mm])	-	-
	Thrust load[N]	-	-
Axis tolerable load (Straight shaft)	Radial load (*2)[N] ([mm])	2058 (L=79)	2058 (L=79)
	Thrust load[N]	980	980
Oil level (*3)[mm]		30	30
Absolute position encoder	16,000,000 p/rev (A74N)	-	MDS-D-V1/V2
	1,000,000 p/rev (A51)	MDS-DM	MDS-D/DM, MDS-D-SVJ3
	260,000 p/rev (A48)	MDS-DM	MDS-D/DM, MDS-D-SVJ3

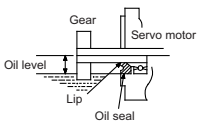
(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)



L : Length from flange installation surface to center of load weight [mm]

(*3)



Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C (with no freezing) Storage: -15°C to +70°C (with no freezing)
Ambient humidity	Operation:80% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Magnetic brake characteristics

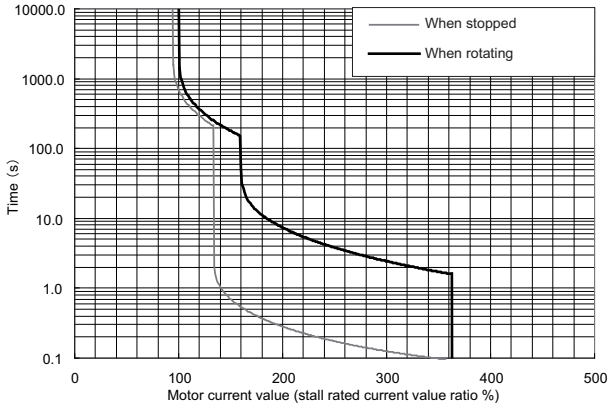
Item	Specifications
Rated voltage	24VDC
Rated current at 20°C[A]	1.4
Static friction torque[N・m]	43.1
Release delay time (*1)[s]	0.1
Braking delay time (DC OFF) (*1)[s]	0.03
Brake life (*2)[times]	20,000

(*1) This is the representative value for the initial attraction gap at 20°C.

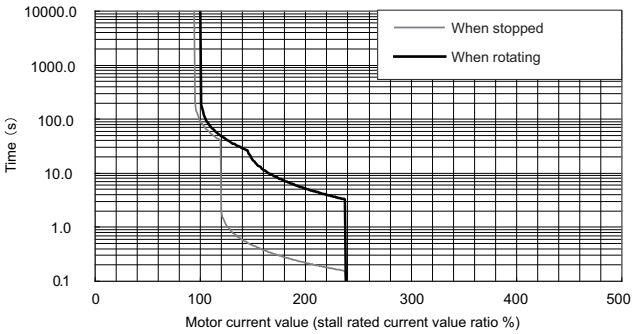
(*2) The brake gap will widen through brake lining wear caused by braking. However, the gap cannot be adjusted. Thus, the brake life is considered to be reached when adjustments are required.

Servo overload protection characteristics

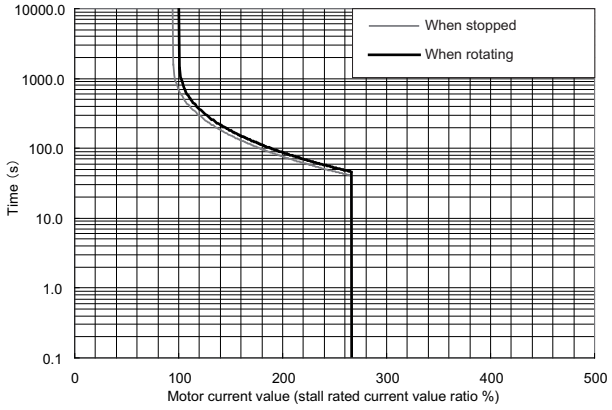
MDS-DM-V3-404040



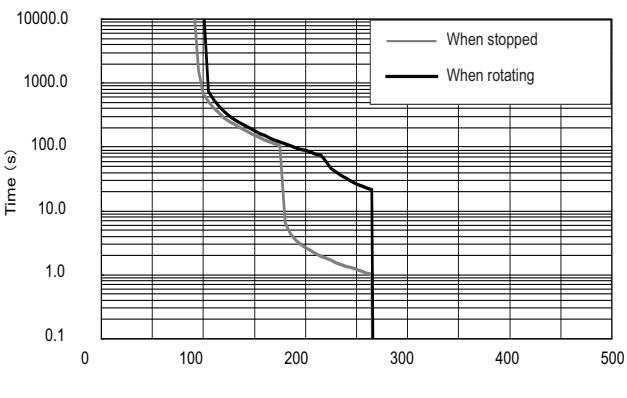
D series



MDS-DM-SPV series

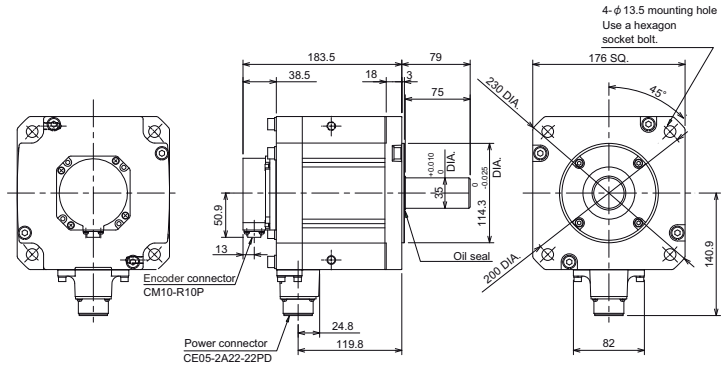


SVJ3 series

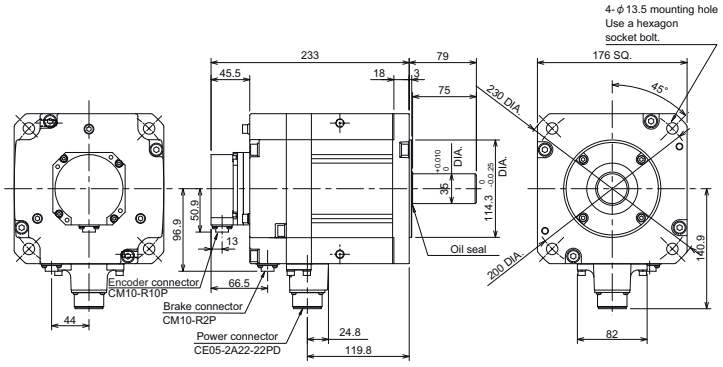


Outline dimension drawings [Unit : mm]

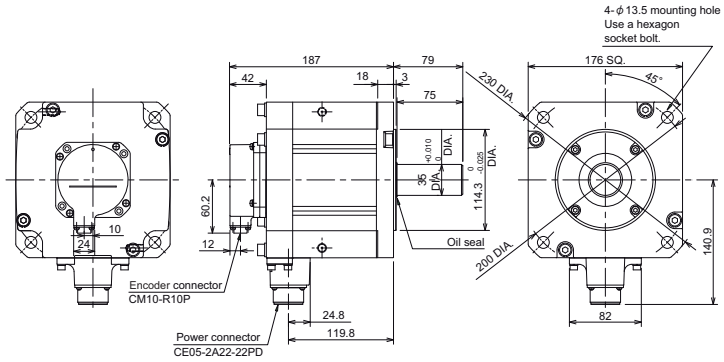
HF302S-A48



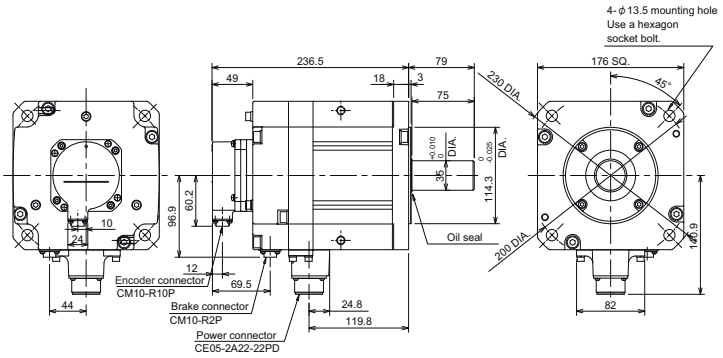
HF302BS-A48

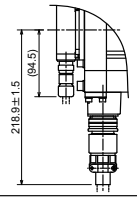
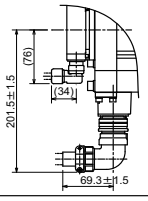
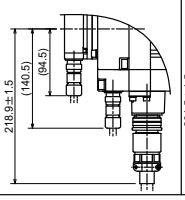
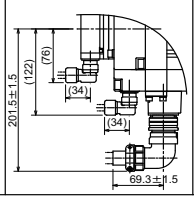
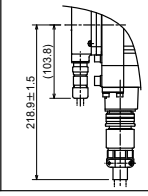
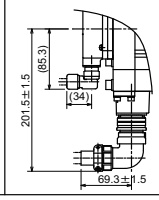
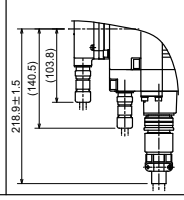
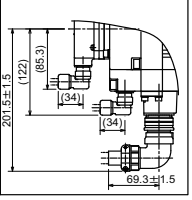


HF302S-A51,-A74N



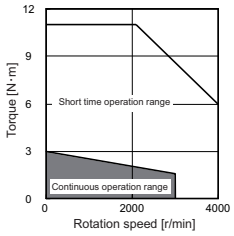
HF302BS-A51,-A74N



A48				A51/A74N			
Without brake		With brake		Without brake		With brake	
Straight plug	Right angle plug	Straight plug	Right angle plug	Straight plug	Right angle plug	Straight plug	Right angle plug
							

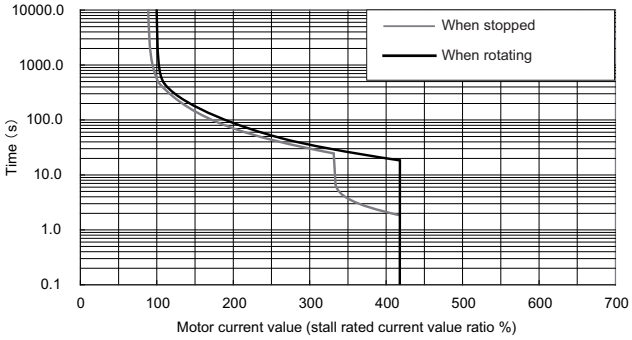
Stall torque	Rated rotation speed	Servo motor type	Explanation of type		
3.0N・m	3000r/min	HP54 ☐☐ -xxx (1)(2) (3)	(1) Magnetic brake	B	with brake
				None	without brake
			(2) Shaft end	S	Straight
				T	Taper
			(3) Encoder	XXX	Type

Torque characteristics



Servo overload protection characteristics

D series

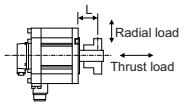


Specifications

Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-D-V1-40
	2-axis type	MDS-D-V2-4020 (L) MDS-D-V2-4040 (L,M) MDS-D-V2-8040 (M)
	Regenerative resistor type	-
Continuous characteristics	Rated output[kW]	0.5
	Rated current[A]	1.8
	Rated torque[N・m]	1.6
	Stall current[A]	4.4
	Stall torque[N・m]	3.0
Maximum momentary output (For power supply selection)[kW]		2.3
Rated rotation speed[r/min]		3000
Maximum rotation speed[r/min]		4000
Maximum current[A]		16.8
Maximum torque[N・m]		11.0
Power rate at continuous rated torque[kW/s]		5.5
Max. deceleration torque of dynamic brake(Tdp)[N・m]		6.36
Motor inertia[$\times 10^{-4}$ kg•m^2]		4.6
(Brake inertia)[$\times 10^{-4}$ kg•m^2]		5.1
Maximum motor shaft conversion load inertia ratio	High-speed, high-accuracy machine[$\times 10^{-4}$ kg•m^2]	13.8
	General machine tool (interpolation axis)[$\times 10^{-4}$ kg•m^2]	23.0
	Non-interpolation axis [$\times 10^{-4}$ kg•m^2]	46.0
Mass	(Without) [kg]	6.0
	(With brake)[kg]	7.3
Heat-resistant class		155(F)
Degree of protection		IP67 (The shaft-through portion is excluded.)
Quakeproof level[m/s^2] ([G])		X:24.5(2.5), Y:24.5(2.5)
Axis tolerable load (Taper shaft)	Radial load (*2)[N] ([mm])	392 (L=52.7)
	Thrust load[N]	490
Axis tolerable load (Straight shaft)	Radial load (*2)[N] ([mm])	980 (L=52.7)
	Thrust load[N]	490
Oil level (*3)[mm]		20
Absolute position encoder	16,000,000 p/rev	A74N
	1,000,000 p/rev	A51
	260,000 p/rev	A48

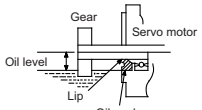
(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)



L : Length from flange installation surface to center of load weight [mm]

(*3)



Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C (with no freezing) Storage: -15°C to +70°C (with no freezing)
Ambient humidity	Operation:80% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Magnetic brake characteristics

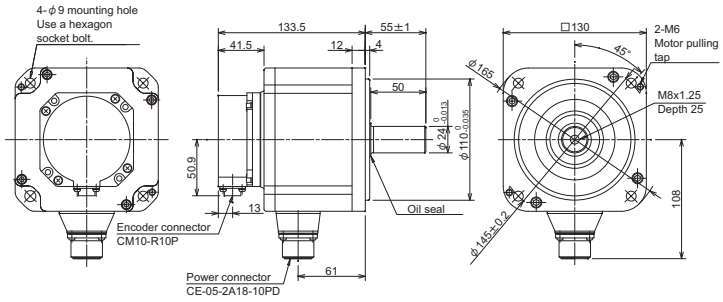
Item	Specifications
Rated voltage	24VDC
Rated current at 20°C[A]	0.91
Static friction torque[N・m]	3.5
Release delay time (*1)[s]	0.1
Braking delay time (DC OFF) (*1)[s]	0.1
Brake life (*2)[times]	20,000

(*1) This is the representative value for the initial attraction gap at 20°C.

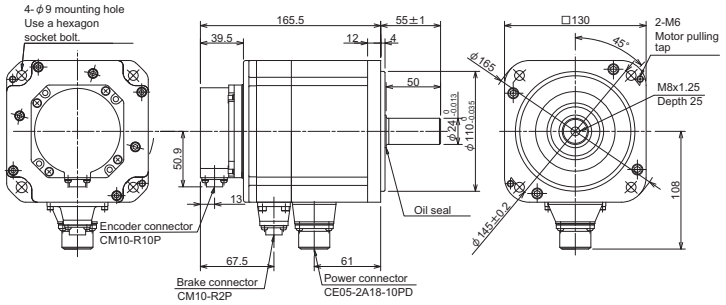
(*2) The brake gap will widen through brake lining wear caused by braking. However, the gap cannot be adjusted. Thus, the brake life is considered to be reached when adjustments are required.

Outline dimension drawings [Unit : mm]

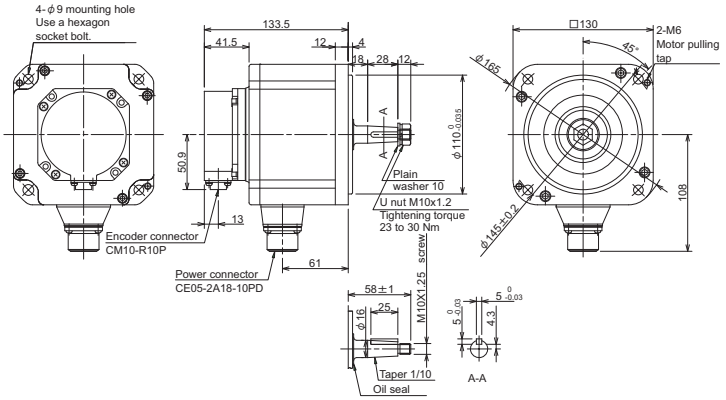
HP54S-A48



HP54BS-A48



HP54T-A48



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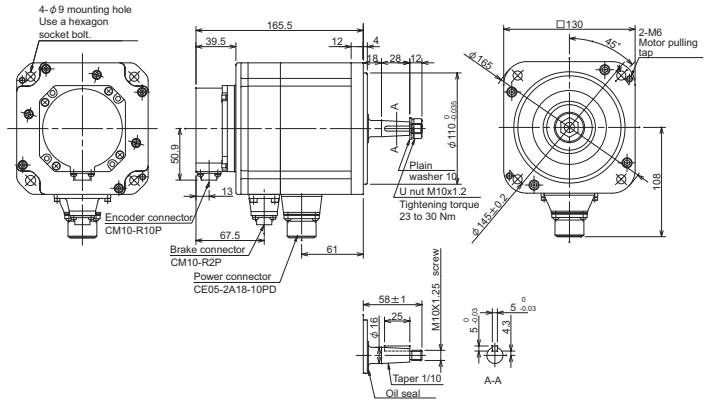
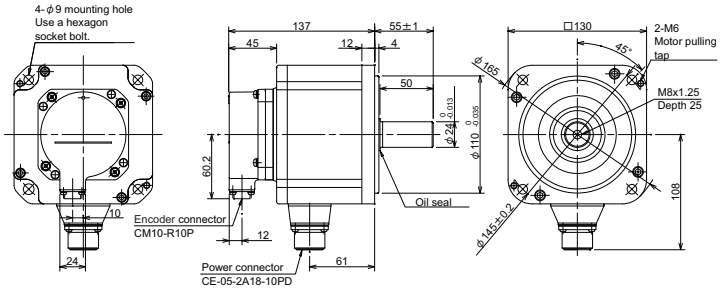


HP54S-A51,-A74N



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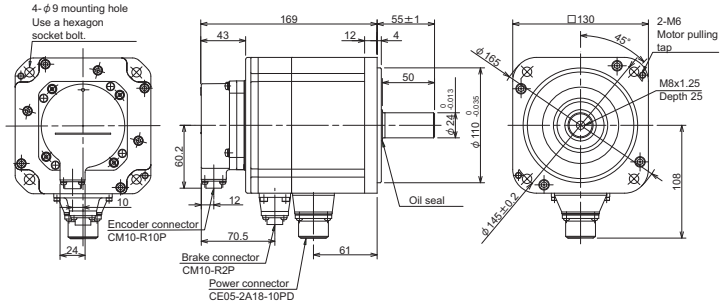
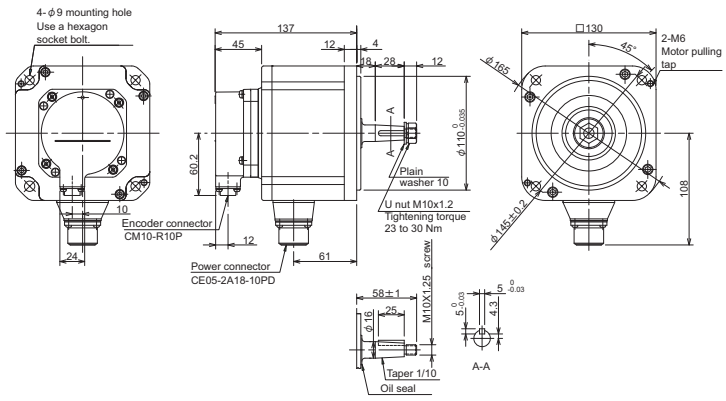
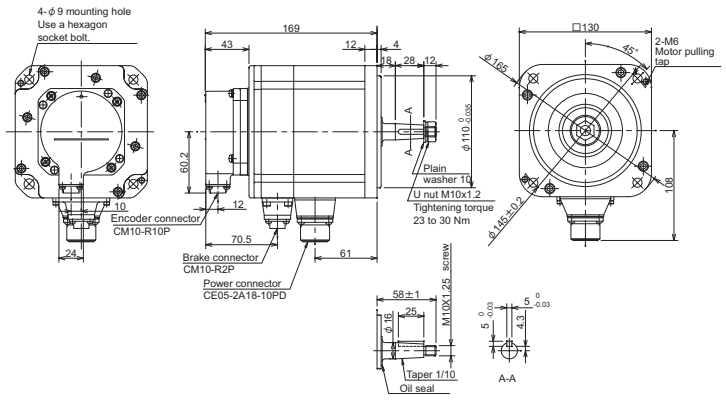
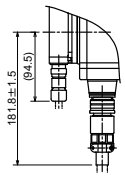
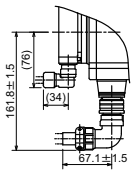
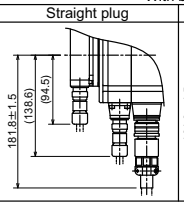
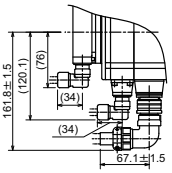
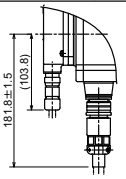
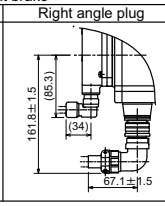
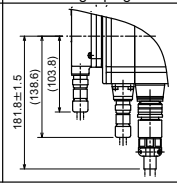
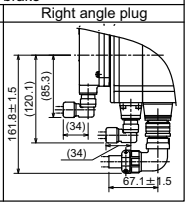


HP54T-A51,-A74N



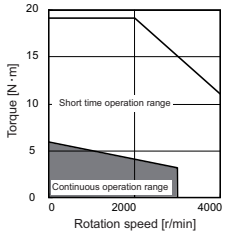
HP54BT-A51,-A74N



A48				A51/A74N			
Without brake		With brake		Without brake		With brake	
Straight plug	Right angle plug	Straight plug	Right angle plug	Straight plug	Right angle plug	Straight plug	Right angle plug
							

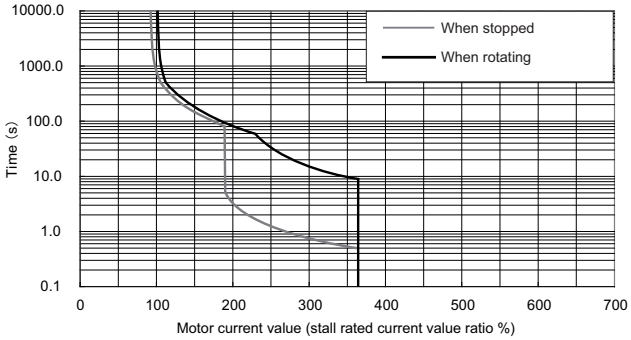
Stall torque	Rated rotation speed	Servo motor type	Explanation of type		
5.9N・m	3000r/min	HP104 ☐☐ -xxx (1)(2) (3)	(1) Magnetic brake	B	with brake
				None	without brake
			(2) Shaft end	S	Straight
				T	Taper
			(3) Encoder	XXX	Type

Torque characteristics



Servo overload protection characteristics

D series

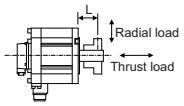


Specifications

Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-D-V1-40
	2-axis type	MDS-D-V2-4020 (L) MDS-D-V2-4040 (L,M) MDS-D-V2-8040 (M)
	Regenerative resistor type	-
Continuous characteristics	Rated output[kW]	1.0
	Rated current[A]	3.6
	Rated torque[N・m]	3.2
	Stall current[A]	7.8
	Stall torque[N・m]	5.9
Maximum momentary output (For power supply selection)[kW]		4.3
Rated rotation speed[r/min]		3000
Maximum rotation speed[r/min]		4000
Maximum current[A]		25.6
Maximum torque[N・m]		19.2
Power rate at continuous rated torque[kW/s]		13.0
Max. deceleration torque of dynamic brake(Tdp)[N・m]		11.10
Motor inertia[$\times 10^{-4}$ kg•m^2]		7.7
(Brake inertia)[$\times 10^{-4}$ kg•m^2]		8.2
Maximum motor shaft conversion load inertia ratio	High-speed, high-accuracy machine[$\times 10^{-4}$ kg•m^2]	23.1
	General machine tool (interpolation axis)[$\times 10^{-4}$ kg•m^2]	38.5
	Non-interpolation axis [$\times 10^{-4}$ kg•m^2]	77.0
Mass	(Without) [kg]	7.0
	(With brake)[kg]	8.5
Heat-resistant class		155(F)
Degree of protection		IP67 (The shaft-through portion is excluded.)
Quakeproof level[m/s^2] ([G])		X:24.5(2.5), Y:24.5(2.5)
Axis tolerable load (Taper shaft)	Radial load (*2)[N] ([mm])	392 (L=52.7)
	Thrust load[N]	490
Axis tolerable load (Straight shaft)	Radial load (*2)[N] ([mm])	980 (L=52.7)
	Thrust load[N]	490
Oil level (*3)[mm]		20
Absolute position encoder	16,000,000 p/rev	A74N
	1,000,000 p/rev	A51
	260,000 p/rev	A48

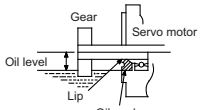
(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)



L : Length from flange installation surface to center of load weight [mm]

(*3)



Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C (with no freezing) Storage: -15°C to +70°C (with no freezing)
Ambient humidity	Operation:80% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Magnetic brake characteristics

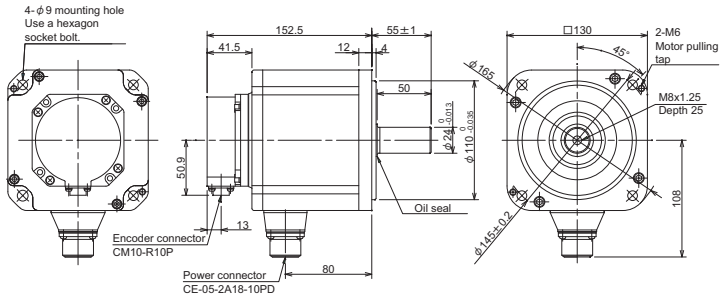
Item	Specifications
Rated voltage	DC24V
Rated current at 20°C[A]	0.86
Static friction torque[N・m]	9
Release delay time (*1)[s]	0.1
Braking delay time (DC OFF) (*1)[s]	0.1
Brake life (*2)[times]	20,000

(*1) This is the representative value for the initial attraction gap at 20°C.

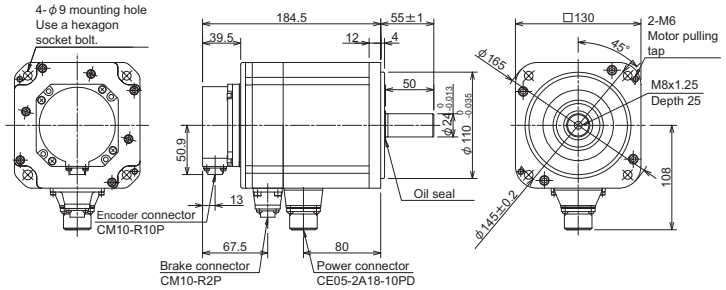
(*2) The brake gap will widen through brake lining wear caused by braking. However, the gap cannot be adjusted. Thus, the brake life is considered to be reached when adjustments are required.

Outline dimension drawings [Unit : mm]

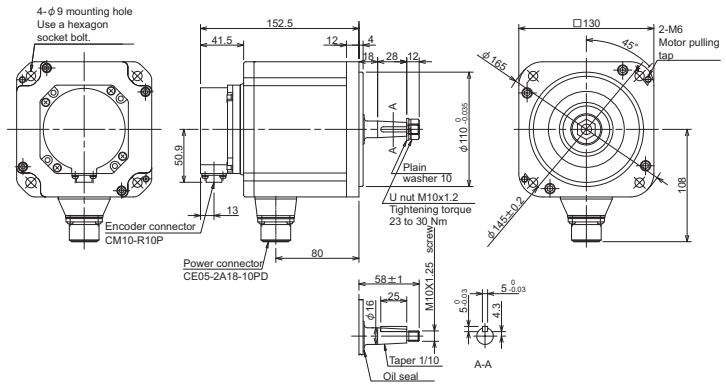
HP104S-A48



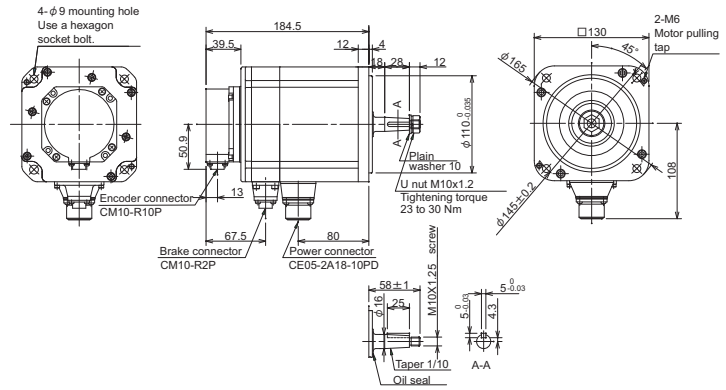
HP104BS-A48



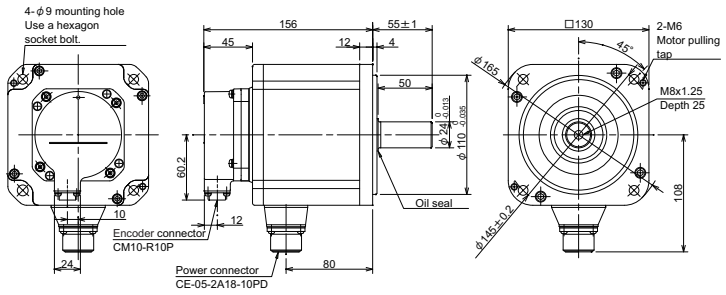
HP104T-A48



HP104BT-A48



HP104S-A51,-A74N



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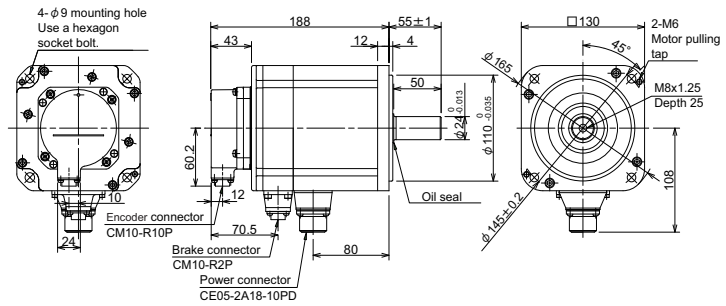

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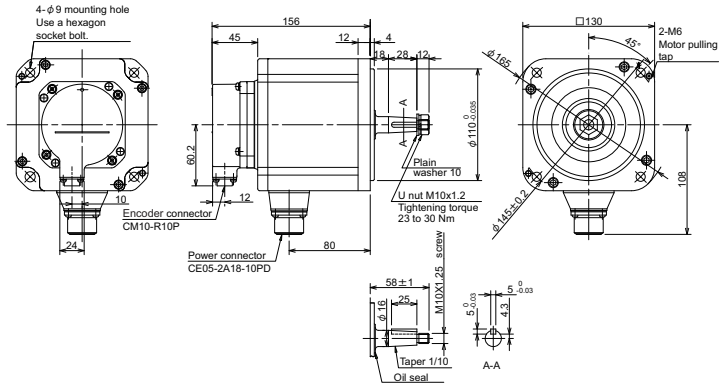

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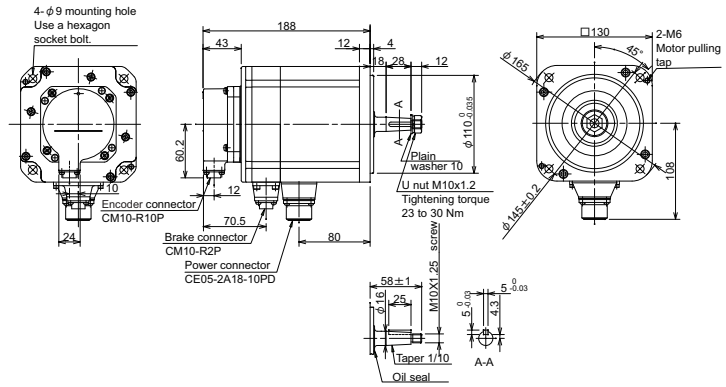
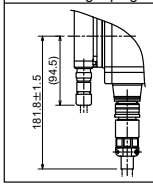
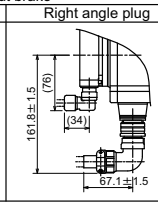
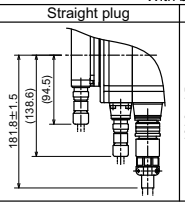
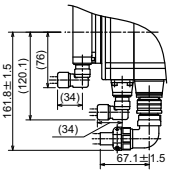
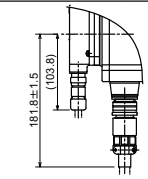
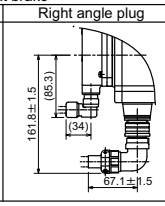
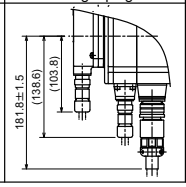
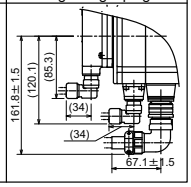
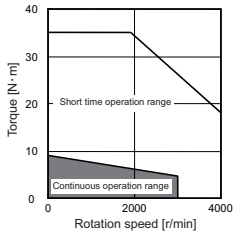


A48				A51/A74N			
Without brake		With brake		Without brake		With brake	
Straight plug	Right angle plug	Straight plug	Right angle plug	Straight plug	Right angle plug	Straight plug	Right angle plug
							

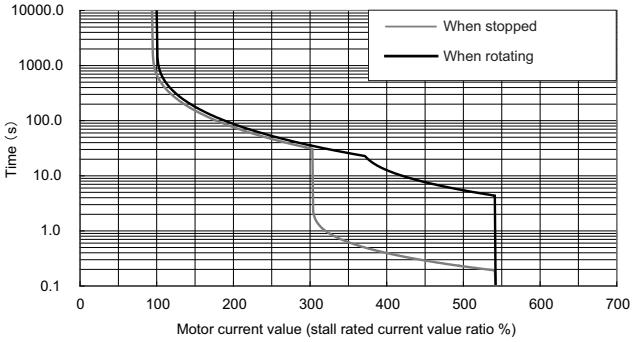
Stall torque	Rated rotation speed	Servo motor type	Explanation of type		
9.0N・m	3000r/min	HP154 ☐☐ -xxx (1)(2) (3)	(1) Magnetic brake	B	with brake
				None	without brake
			(2) Shaft end	S	Straight
				T	Taper
			(3) Encoder	XXX	Type

Torque characteristics



Servo overload protection characteristics

D series

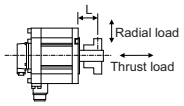


Specifications

Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-D-V1-80
	2-axis type	MDS-D-V2-8040 (L) MDS-D-V2-8080 (L,M) MDS-D-V2-16080 (M)
	Regenerative resistor type	-
Continuous characteristics	Rated output[kW]	1.5
	Rated current[A]	5.1
	Rated torque[N・m]	4.8
	Stall current[A]	9.6
	Stall torque[N・m]	9.0
Maximum momentary output (For power supply selection)[kW]		8.0
Rated rotation speed[r/min]		3000
Maximum rotation speed[r/min]		4000
Maximum current[A]		52.0
Maximum torque[N・m]		36.5
Power rate at continuous rated torque[kW/s]		19.0
Max. deceleration torque of dynamic brake(Tdp)[N・m]		17.41
Motor inertia[$\times10^{-4}$ kg•m^2]		12.0
(Brake inertia)[$\times10^{-4}$ kg•m^2]		12.5
Maximum motor shaft conversion load inertia ratio	High-speed, high-accuracy machine[$\times10^{-4}$ kg•m^2]	36.0
	General machine tool (interpolation axis)[$\times10^{-4}$ kg•m^2]	60.0
	Non-interpolation axis [$\times10^{-4}$ kg•m^2]	120.0
Mass	(Without) [kg]	8.0
	(With brake)[kg]	9.5
Heat-resistant class		155(F)
Degree of protection		IP67 (The shaft-through portion is excluded.)
Quakeproof level[m/s^2] ([G])		X:24.5(2.5), Y:24.5(2.5)
Axis tolerable load (Taper shaft)	Radial load (*2)[N] ([mm])	392 (L=52.7)
	Thrust load[N]	490
Axis tolerable load (Straight shaft)	Radial load (*2)[N] ([mm])	980 (L=52.7)
	Thrust load[N]	490
Oil level (*3)[mm]		20
Absolute position encoder	16,000,000 p/rev	A74N
	1,000,000 p/rev	A51
	260,000 p/rev	A48

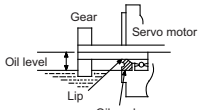
(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)



L : Length from flange installation surface to center of load weight [mm]

(*3)



Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C (with no freezing) Storage: -15°C to +70°C (with no freezing)
Ambient humidity	Operation:80% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Magnetic brake characteristics

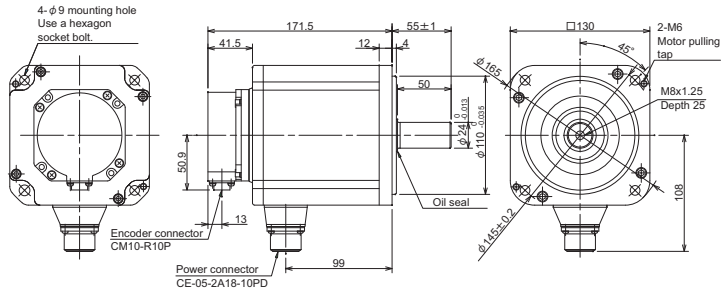
Item	Specifications
Rated voltage	24VDC
Rated current at 20°C[A]	0.86
Static friction torque[N・m]	9
Release delay time (*1)[s]	0.1
Braking delay time (DC OFF) (*1)[s]	0.1
Brake life (*2)[times]	20,000

(*1) This is the representative value for the initial attraction gap at 20°C.

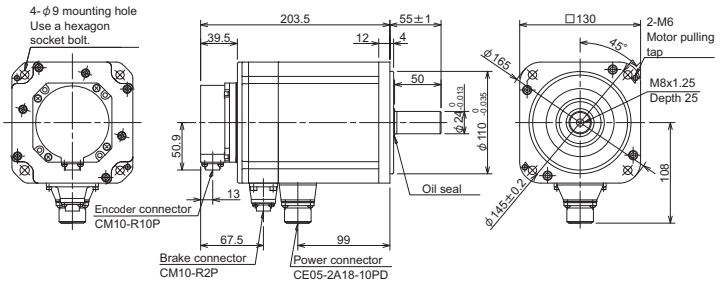
(*2) The brake gap will widen through brake lining wear caused by braking. However, the gap cannot be adjusted. Thus, the brake life is considered to be reached when adjustments are required.

Outline dimension drawings [Unit : mm]

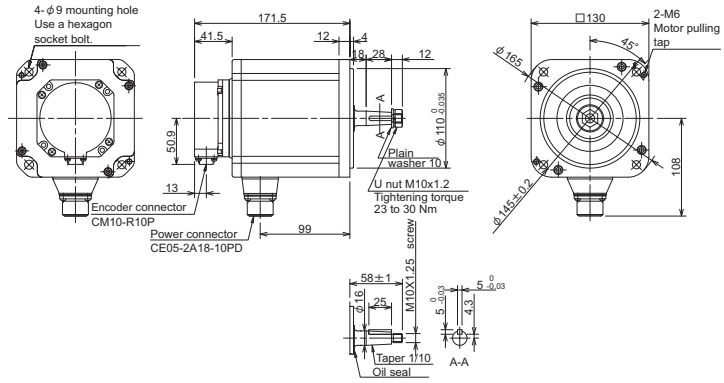
HP154S-A48



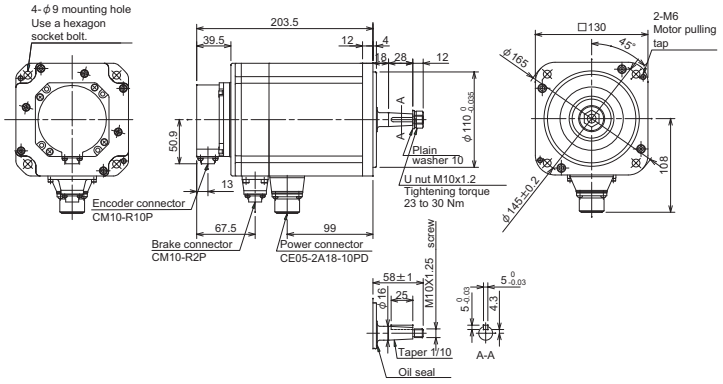
HP154BS-A48



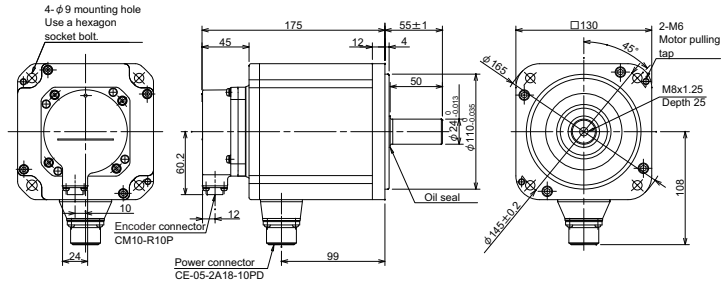
HP154T-A48



HP154BT-A48



HP154S-A51,-A74N



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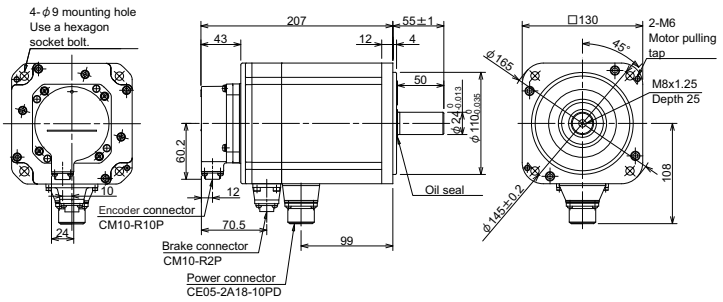
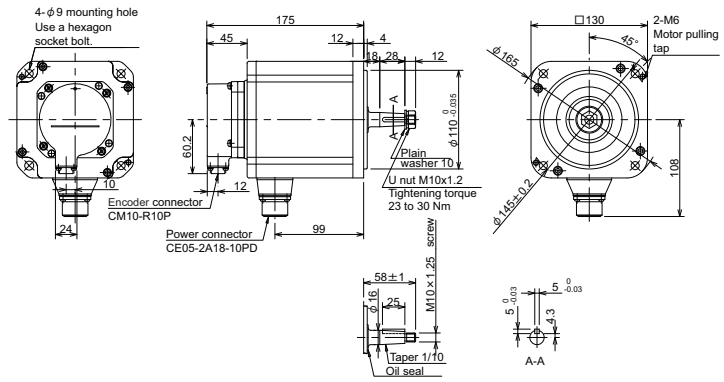
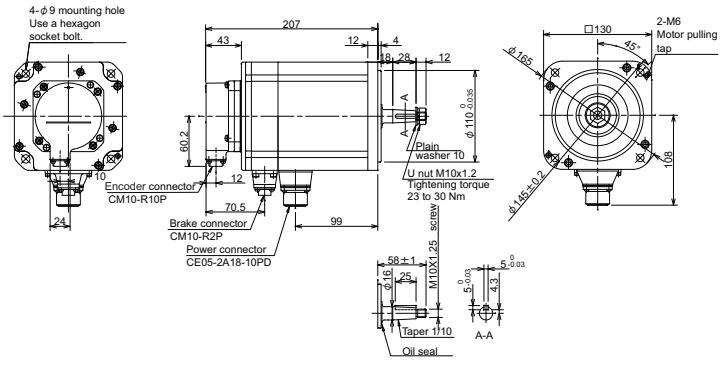
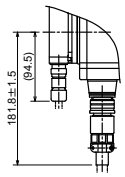
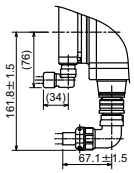
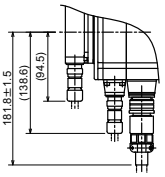
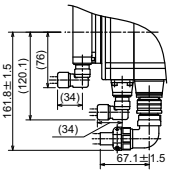
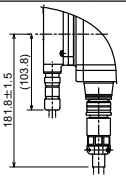
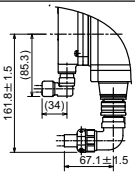
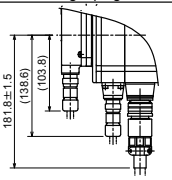
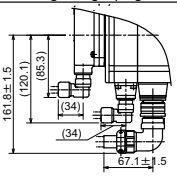


HP154T-A51,-A74N



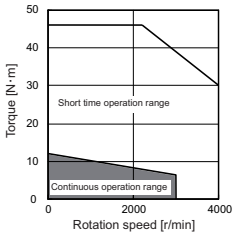
HP154BT-A51,-A74N



A48				A51/A74N			
Without brake		With brake		Without brake		With brake	
Straight plug	Right angle plug	Straight plug	Right angle plug	Straight plug	Right angle plug	Straight plug	Right angle plug
							

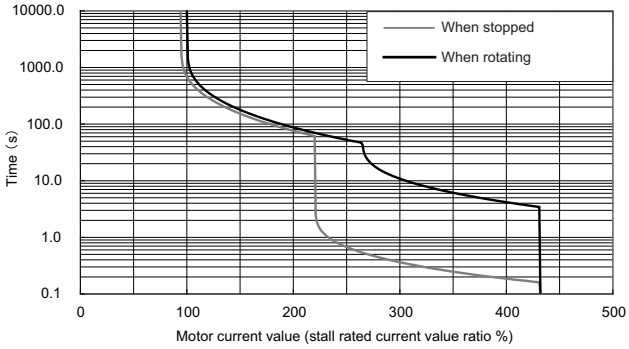
Stall torque	Rated rotation speed	Servo motor type	Explanation of type		
12.0N・m	3000r/min	HP224 ☐☐ -xxx (1)(2) (3)	(1) Magnetic brake	B	with brake
				None	without brake
			(2) Shaft end	S	Straight
				T	Taper
			(3) Encoder	XXX	Type

Torque characteristics



Servo overload protection characteristics

D series

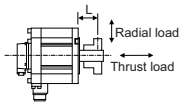


Specifications

Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-D-V1-80
	2-axis type	MDS-D-V2-8040 (L) MDS-D-V2-8080 (L,M) MDS-D-V2-16080 (M)
	Regenerative resistor type	-
Continuous characteristics	Rated output[kW]	2.2
	Rated current[A]	6.9
	Rated torque[N・m]	6.4
	Stall current[A]	14.0
	Stall torque[N・m]	12.0
Maximum momentary output (For power supply selection)[kW]		11.0
Rated rotation speed[r/min]		3000
Maximum rotation speed[r/min]		4000
Maximum current[A]		57.0
Maximum torque[N・m]		46.0
Power rate at continuous rated torque[kW/s]		20.0
Max. deceleration torque of dynamic brake(Tdp)[N・m]		28.74
Motor inertia[$\times10^{-4}$ kg•m^2]		20.0
(Brake inertia)[$\times10^{-4}$ kg•m^2]		20.5
Maximum motor shaft conversion load inertia ratio	High-speed, high-accuracy machine[$\times10^{-4}$ kg•m^2]	60.0
	General machine tool (interpolation axis)[$\times10^{-4}$ kg•m^2]	100.0
	Non-interpolation axis [$\times10^{-4}$ kg•m^2]	200.0
Mass	(Without) [kg]	12.0
	(With brake)[kg]	13.9
Heat-resistant class		155(F)
Degree of protection		IP67 (The shaft-through portion is excluded.)
Quakeproof level[m/s^2] ([G])		X:24.5(2.5), Y:24.5(2.5)
Axis tolerable load (Taper shaft)	Radial load (*2)[N] ([mm])	392 (L=52.7)
	Thrust load[N]	490
Axis tolerable load (Straight shaft)	Radial load (*2)[N] ([mm])	980 (L=52.7)
	Thrust load[N]	490
Oil level (*3)[mm]		20
Absolute position encoder	16,000,000 p/rev	A74N
	1,000,000 p/rev	A51
	260,000 p/rev	A48

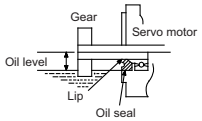
(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)



L : Length from flange installation surface to center of load weight [mm]

(*3)



Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C (with no freezing) Storage: -15°C to +70°C (with no freezing)
Ambient humidity	Operation:80% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Magnetic brake characteristics

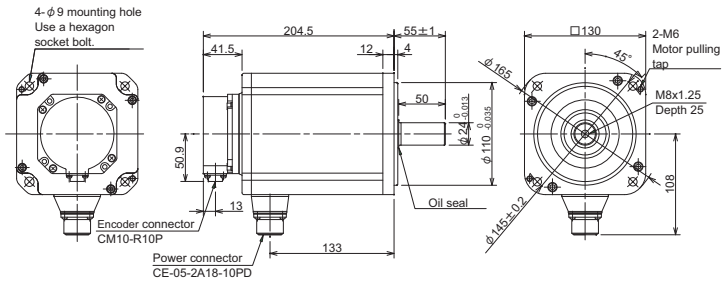
Item	Specifications
Rated voltage	24VDC
Rated current at 20°C[A]	1.0
Static friction torque[N・m]	12
Release delay time (*1)[s]	0.1
Braking delay time (DC OFF) (*1)[s]	0.1
Brake life (*2)[times]	20,000

(*1) This is the representative value for the initial attraction gap at 20°C.

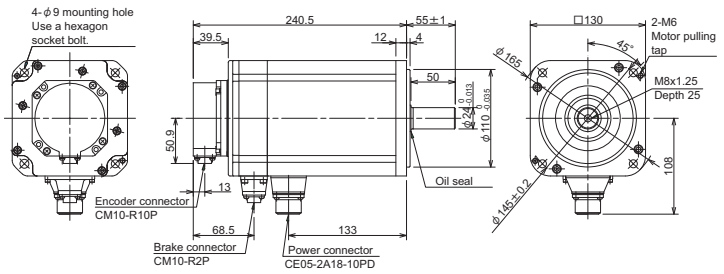
(*2) The brake gap will widen through brake lining wear caused by braking. However, the gap cannot be adjusted. Thus, the brake life is considered to be reached when adjustments are required.

Outline dimension drawings [Unit : mm]

HP224S-A48



HP224BS-A48



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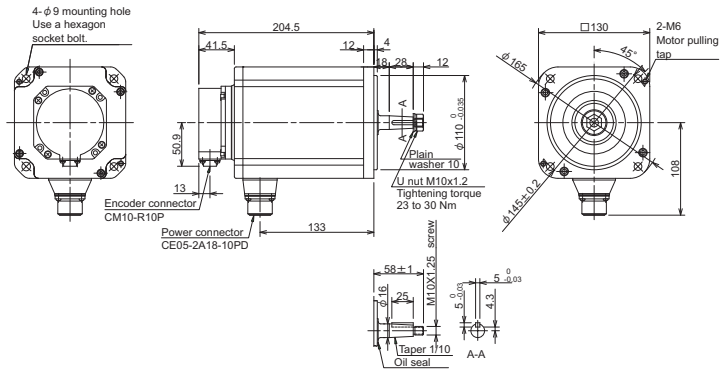

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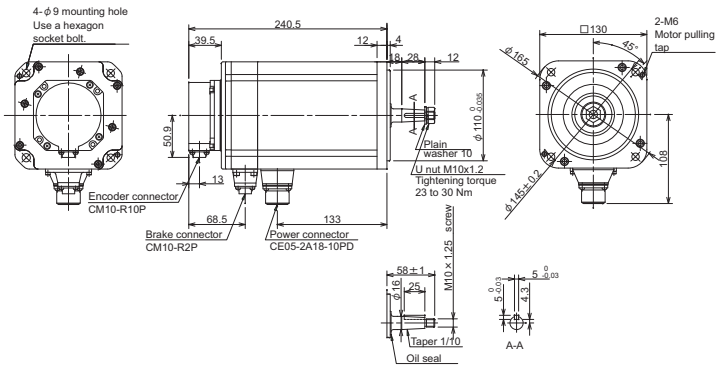
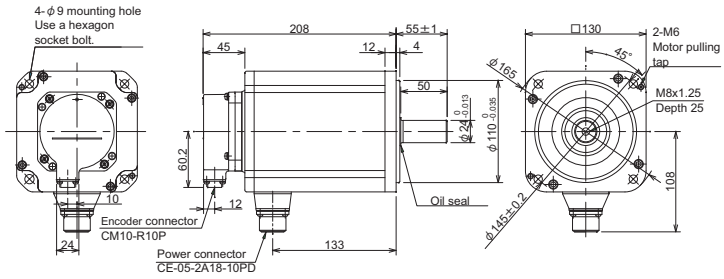


HP224S-A51,-A74N



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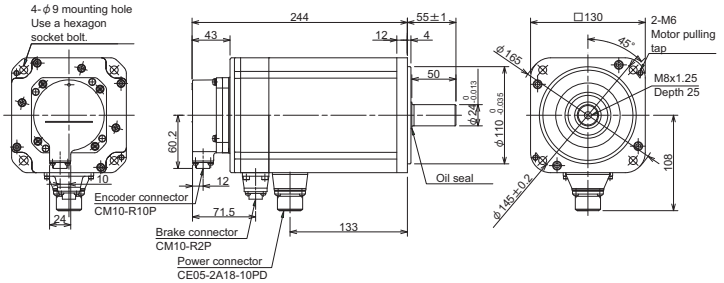

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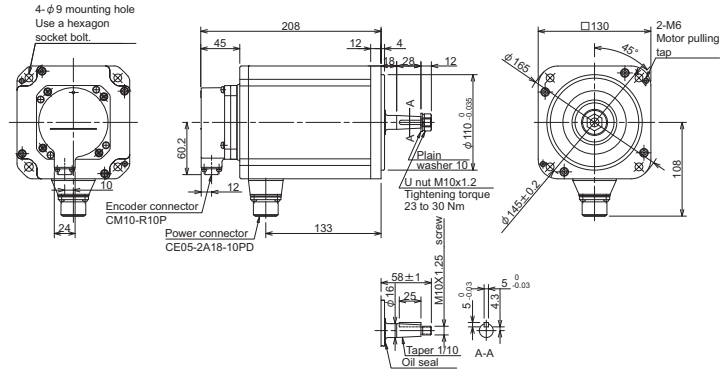

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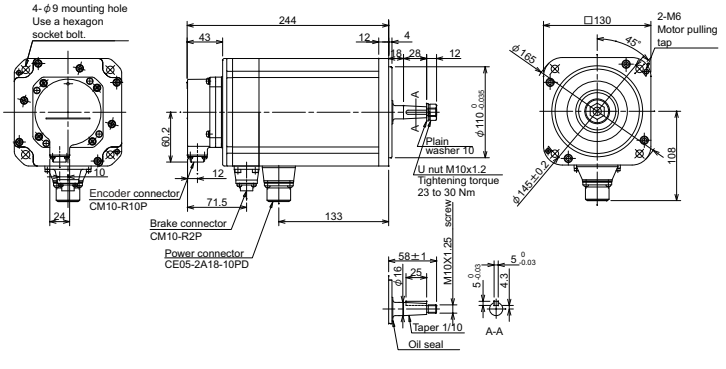
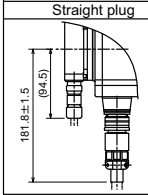
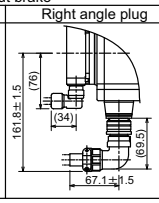
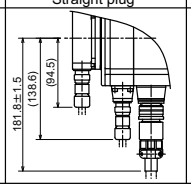
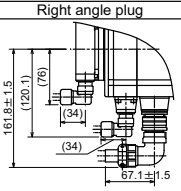
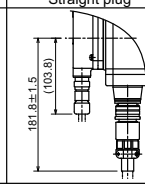
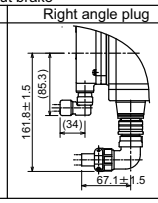
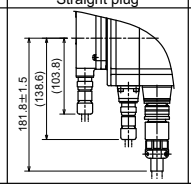
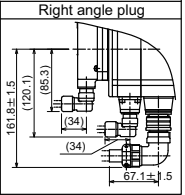
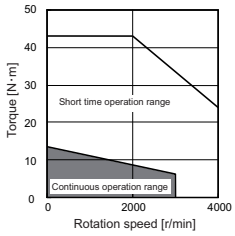


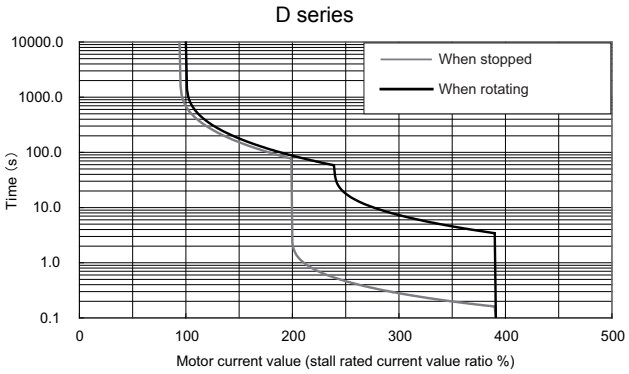
A48				A51/A74N			
Without brake		With brake		Without brake		With brake	
Straight plug	Right angle plug	Straight plug	Right angle plug	Straight plug	Right angle plug	Straight plug	Right angle plug
							

Stall torque	Rated rotation speed	Servo motor type	Explanation of type		
13.7N・m	3000r/min	HP204 ☐ S-xxx (1) (2)	(1) Magnetic brake	B	with brake
				None	without brake
			(2) Encoder	XXX	Type

Torque characteristics



Servo overload protection characteristics

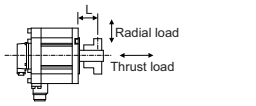


Specifications

Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-D-V1-80
	2-axis type	MDS-D-V2-8040 (L) MDS-D-V2-8080 (L,M) MDS-D-V2-16080 (M)
	Regenerative resistor type	-
Continuous characteristics	Rated output[kW]	2.0
	Rated current[A]	7.4
	Rated torque[N・m]	6.4
	Stall current[A]	14.6
	Stall torque[N・m]	13.7
Maximum momentary output (For power supply selection)[kW]		11.0
Rated rotation speed[r/min]		3000
Maximum rotation speed[r/min]		4000
Maximum current[A]		57.0
Maximum torque[N・m]		43.0
Power rate at continuous rated torque[kW/s]		14.0
Max. deceleration torque of dynamic brake(Tdp)[N・m]		26.16
Motor inertia[$\times 10^{-4}$ kg•m^2]		29.0
(Brake inertia)[$\times 10^{-4}$ kg•m^2]		34.5
Maximum motor shaft conversion load inertia ratio	High-speed, high-accuracy machine[$\times 10^{-4}$ kg•m^2]	87.0
	General machine tool (interpolation axis)[$\times 10^{-4}$ kg•m^2]	145.0
	Non-interpolation axis [$\times 10^{-4}$ kg•m^2]	290.0
Mass	(Without) [kg]	14.0
	(With brake)[kg]	15.9
Heat-resistant class		155(F)
Degree of protection		IP67 (The shaft-through portion is excluded.)
Quakeproof level[m/s^2] ([G])		X:24.5(2.5), Y:29.4(3)
Axis tolerable load (Taper shaft)	Radial load (*2)[N] ([mm])	-
	Thrust load[N]	-
Axis tolerable load (Straight shaft)	Radial load (*2)[N] ([mm])	1500 (L=52.7)
	Thrust load[N]	490
Oil level (*3)[mm]		25
Absolute position encoder	16,000,000 p/rev	A74N
	1,000,000 p/rev	A51
	260,000 p/rev	A48

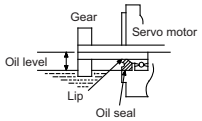
(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)



L : Length from flange installation surface to center of load weight [mm]

(*3)



Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C (with no freezing) Storage: -15°C to +70°C (with no freezing)
Ambient humidity	Operation:80% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Magnetic brake characteristics

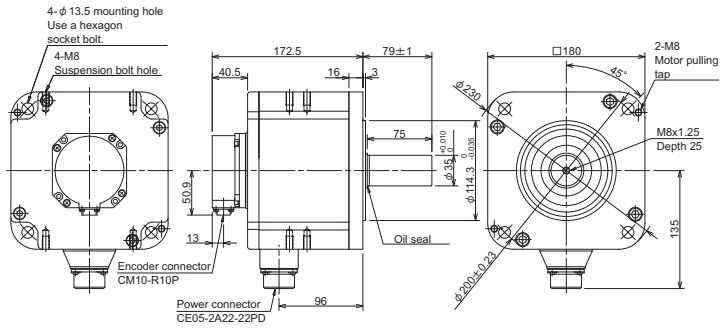
Item	Specifications
Rated voltage	24VDC
Rated current at 20°C[A]	1.0
Static friction torque[N・m]	12
Release delay time (*1)[s]	0.1
Braking delay time (DC OFF) (*1)[s]	0.1
Brake life (*2)[times]	20,000

(*1) This is the representative value for the initial attraction gap at 20°C.

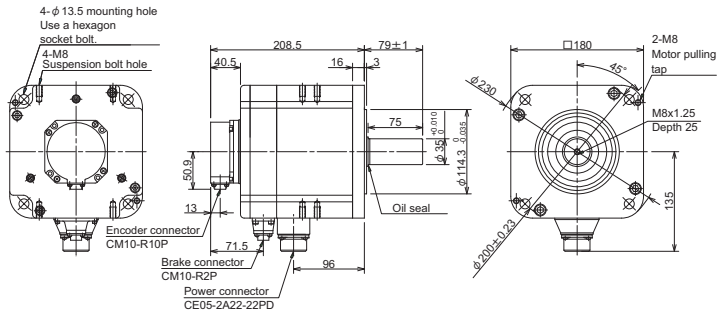
(*2) The brake gap will widen through brake lining wear caused by braking. However, the gap cannot be adjusted. Thus, the brake life is considered to be reached when adjustments are required.

Outline dimension drawings [Unit : mm]

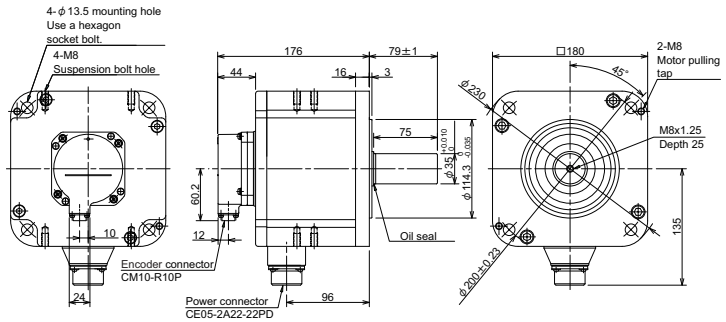
HP204S-A48



HP204BS-A48



HP204S-A51,-A74N



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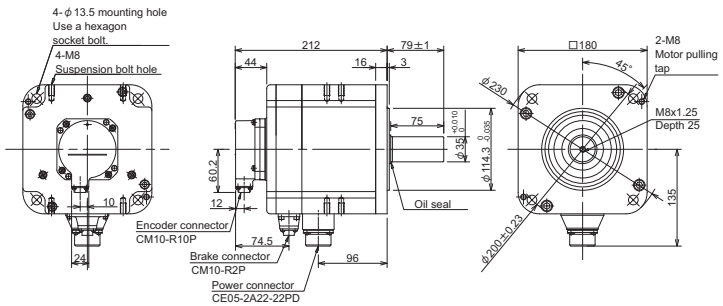
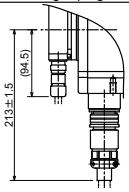
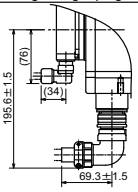
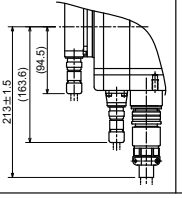
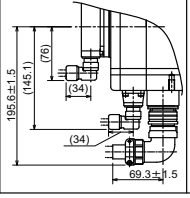
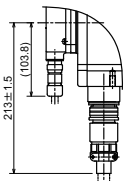
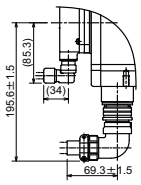
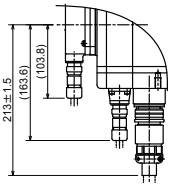
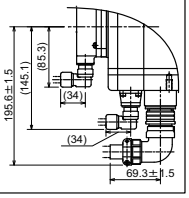
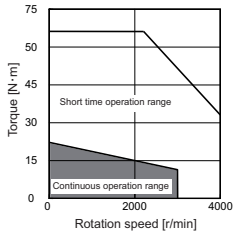


A48				A51/A74N			
Without brake		With brake		Without brake		With brake	
Straight plug	Right angle plug	Straight plug	Right angle plug	Straight plug	Right angle plug	Straight plug	Right angle plug
							

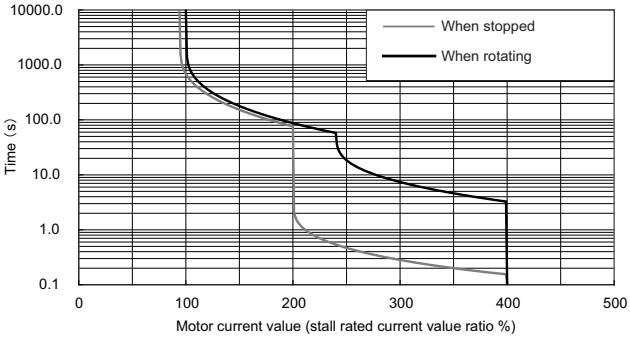
Stall torque	Rated rotation speed	Servo motor type	Explanation of type		
22.5N・m	3000r/min	HP354 ☐ S-xxx (1) (2)	(1) Magnetic brake	B	with brake
				None	without brake
			(2) Encoder	XXX	Type

Torque characteristics



Servo overload protection characteristics

D series

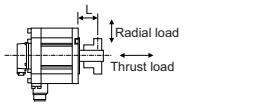


Specifications

Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-D-V1-160
	2-axis type	MDS-D-V2-16080 (L) MDS-D-V2-160160 (L,M) MDS-D-V2-160160W (L,M)
	Regenerative resistor type	-
Continuous characteristics	Rated output[kW]	3.5
	Rated current[A]	14.5
	Rated torque[N・m]	11.1
	Stall current[A]	29.0
	Stall torque[N・m]	22.5
Maximum momentary output (For power supply selection)[kW]		15.0
Rated rotation speed[r/min]		3000
Maximum rotation speed[r/min]		4000
Maximum current[A]		116.0
Maximum torque[N・m]		66.0
Power rate at continuous rated torque[kW/s]		33.0
Max. deceleration torque of dynamic brake(Tdp)[N・m]		38.44
Motor inertia[$\times 10^{-4}$ kg•m^2]		37.0
(Brake inertia)[$\times 10^{-4}$ kg•m^2]		42.5
Maximum motor shaft conversion load inertia ratio	High-speed, high-accuracy machine[$\times 10^{-4}$ kg•m^2]	111.0
	General machine tool (interpolation axis)[$\times 10^{-4}$ kg•m^2]	185.0
	Non-interpolation axis [$\times 10^{-4}$ kg•m^2]	370.0
Mass	(Without) [kg]	17.0
	(With brake)[kg]	22
Heat-resistant class		155(F)
Degree of protection		IP67 (The shaft-through portion is excluded.)
Quakeproof level[m/s^2] ([G])		X:24.5(2.5), Y:29.4(3)
Axis tolerable load (Taper shaft)	Radial load (*2)[N] ([mm])	-
	Thrust load[N]	-
Axis tolerable load (Straight shaft)	Radial load (*2)[N] ([mm])	1500 (L=52.7)
	Thrust load[N]	490
Oil level (*3)[mm]		25
Absolute position encoder	16,000,000 p/rev	A74N
	1,000,000 p/rev	A51
	260,000 p/rev	A48

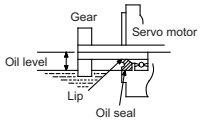
(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)



L : Length from flange installation surface to center of load weight [mm]

(*3)



Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C (with no freezing) Storage: -15°C to +70°C (with no freezing)
Ambient humidity	Operation:80% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Magnetic brake characteristics

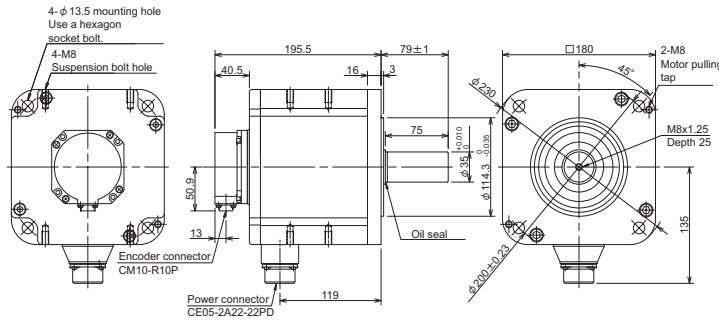
Item	Specifications
Rated voltage	24VDC
Rated current at 20°C[A]	1.4
Static friction torque[N・m]	32
Release delay time (*1)[s]	0.12
Braking delay time (DC OFF) (*1)[s]	0.1
Brake life (*2)[times]	20,000

(*1) This is the representative value for the initial attraction gap at 20°C.

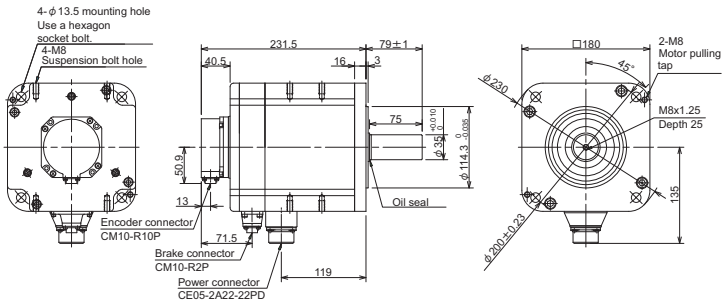
(*2) The brake gap will widen through brake lining wear caused by braking. However, the gap cannot be adjusted. Thus, the brake life is considered to be reached when adjustments are required.

Outline dimension drawings [Unit : mm]

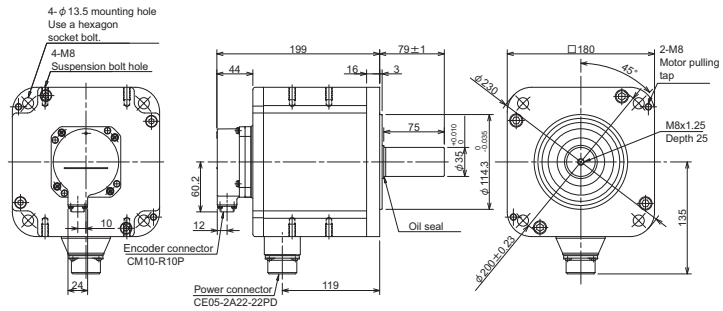
HP354S-A48



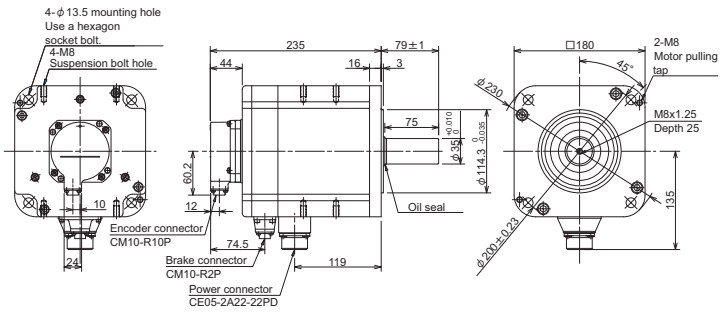
HP354BS-A48

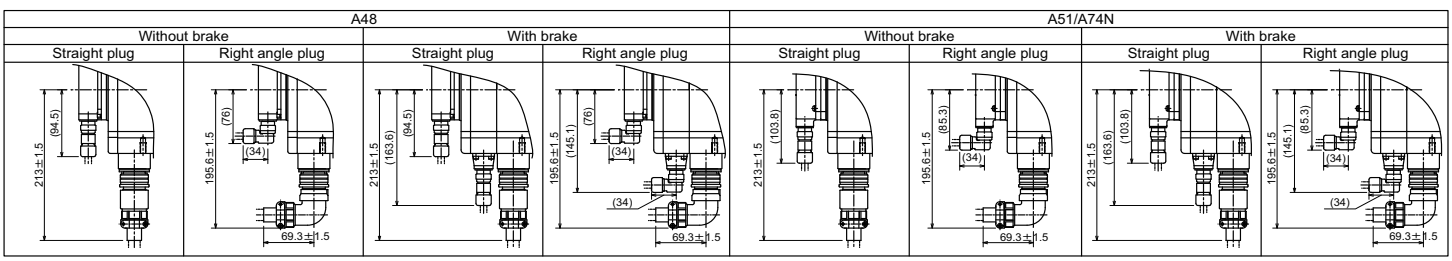


HP354S-A51,-A74N



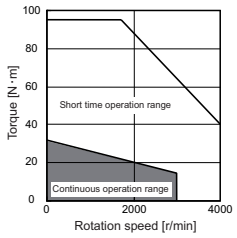
HP354BS-A51,-A74N





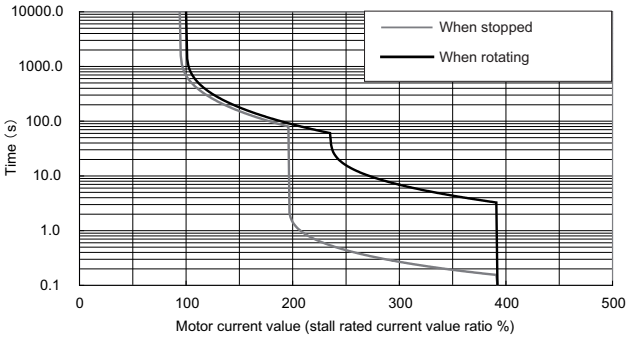
Stall torque	Rated rotation speed	Servo motor type	Explanation of type		
31.9N・m	3000r/min	HP454 ☐ S-xxx (1) (2)	(1) Magnetic brake	B	with brake
				None	without brake
			(2) Encoder	XXX	Type

Torque characteristics



Servo overload protection characteristics

D series

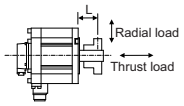


Specifications

Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-D-V1-160
	2-axis type	MDS-D-V2-16080 (L) MDS-D-V2-160160 (L,M) MDS-D-V2-160160W (L,M)
	Regenerative resistor type	-
Continuous characteristics	Rated output[kW]	4.5
	Rated current[A]	12.8
	Rated torque[N・m]	14.3
	Stall current[A]	29.6
	Stall torque[N・m]	31.9
Maximum momentary output (For power supply selection)[kW]		21.0
Rated rotation speed[r/min]		3000
Maximum rotation speed[r/min]		4000
Maximum current[A]		116.0
Maximum torque[N・m]		95.0
Power rate at continuous rated torque[kW/s]		36.0
Max. deceleration torque of dynamic brake(Tdp)[N・m]		61.60
Motor inertia[$\times10^{-4}$ kg•m^2]		55.0
(Brake inertia)[$\times10^{-4}$ kg•m^2]		60.5
Maximum motor shaft conversion load inertia ratio	High-speed, high-accuracy machine[$\times10^{-4}$ kg•m^2]	165.0
	General machine tool (interpolation axis)[$\times10^{-4}$ kg•m^2]	275.0
	Non-interpolation axis [$\times10^{-4}$ kg•m^2]	550.0
Mass	(Without) [kg]	21.0
	(With brake)[kg]	26
Heat-resistant class		155(F)
Degree of protection		IP67 (The shaft-through portion is excluded.)
Quakeproof level[m/s^2] ([G])		X:24.5(2.5), Y:29.4(3)
Axis tolerable load (Taper shaft)	Radial load (*2)[N] ([mm])	-
	Thrust load[N]	-
Axis tolerable load (Straight shaft)	Radial load (*2)[N] ([mm])	1500 (L=52.7)
	Thrust load[N]	490
Oil level (*3)[mm]		25
Absolute position encoder	16,000,000 p/rev	A74N
	1,000,000 p/rev	A51
	260,000 p/rev	A48

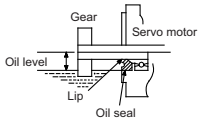
(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)



L : Length from flange installation surface to center of load weight [mm]

(*3)



Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C (with no freezing) Storage: -15°C to +70°C (with no freezing)
Ambient humidity	Operation:80% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Magnetic brake characteristics

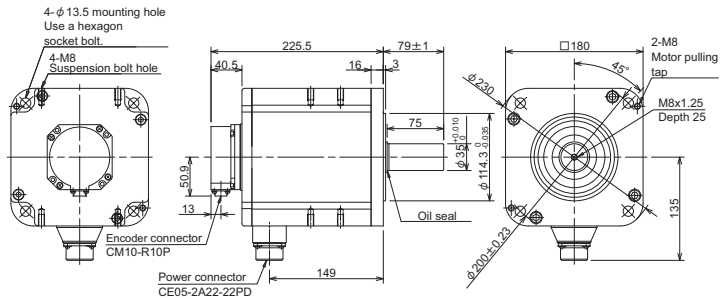
Item	Specifications
Rated voltage	24VDC
Rated current at 20°C[A]	1.4
Static friction torque[N・m]	32
Release delay time (*1)[s]	0.12
Braking delay time (DC OFF) (*1)[s]	0.1
Brake life (*2)[times]	20,000

(*1) This is the representative value for the initial attraction gap at 20°C.

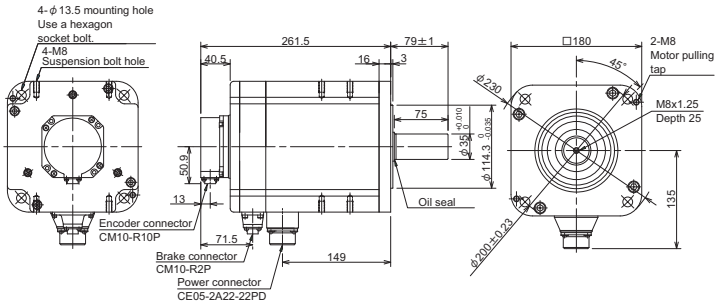
(*2) The brake gap will widen through brake lining wear caused by braking. However, the gap cannot be adjusted. Thus, the brake life is considered to be reached when adjustments are required.

Outline dimension drawings [Unit : mm]

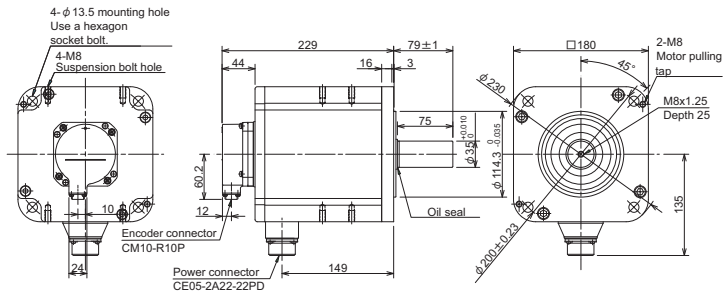
HP454S-A48



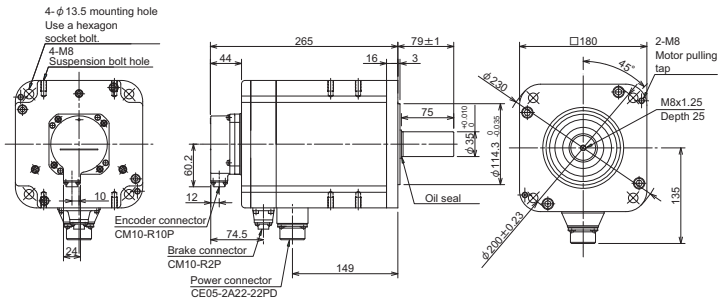
HP454BS-A48

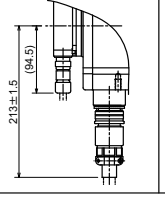
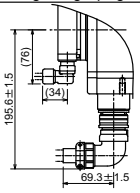
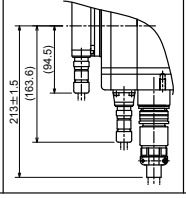
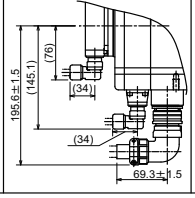
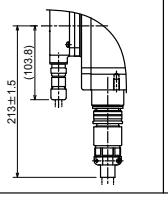
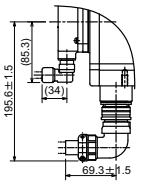
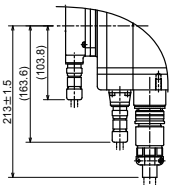
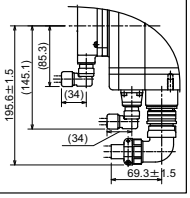


HP454S-A51,-A74N



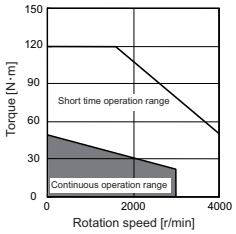
HP454BS-A51,-A74N



A48				A51/A74N			
Without brake		With brake		Without brake		With brake	
Straight plug	Right angle plug	Straight plug	Right angle plug	Straight plug	Right angle plug	Straight plug	Right angle plug
							

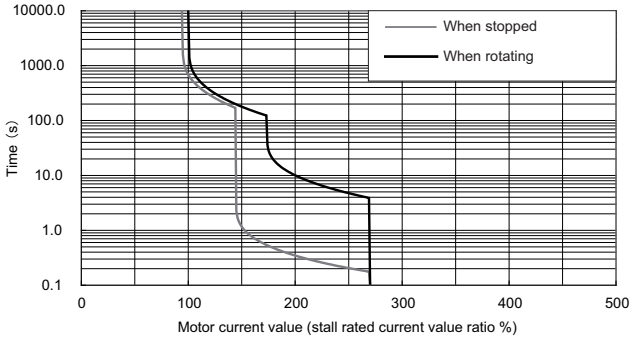
Stall torque	Rated rotation speed	Servo motor type	Explanation of type		
49.0N・m	3000r/min	HP704 ☐ S-xxx (1) (2)	(1) Magnetic brake	B	with brake
				None	without brake
			(2) Encoder	XXX	Type

Torque characteristics



Servo overload protection characteristics

D series

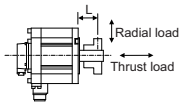


Specifications

Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-D-V1-160W
	2-axis type	MDS-D-V2-160160W (L,M)
	Regenerative resistor type	-
Continuous characteristics	Rated output[kW]	7.0
	Rated current[A]	17.2
	Rated torque[N・m]	22.3
	Stall current[A]	40.2
	Stall torque[N・m]	49.0
Maximum momentary output (For power supply selection)[kW]		27.0
Rated rotation speed[r/min]		3000
Maximum rotation speed[r/min]		4000
Maximum current[A]		116.0
Maximum torque[N・m]		120.0
Power rate at continuous rated torque[kW/s]		59.0
Max. deceleration torque of dynamic brake(Tdp)[N・m]		88.38
Motor inertia[$\times 10^{-4}$ kg•m^2]		82.0
(Brake inertia)[$\times 10^{-4}$ kg•m^2]		87.5
Maximum motor shaft conversion load inertia ratio	High-speed, high-accuracy machine[$\times 10^{-4}$ kg•m^2]	246.0
	General machine tool (interpolation axis)[$\times 10^{-4}$ kg•m^2]	410.0
	Non-interpolation axis [$\times 10^{-4}$ kg•m^2]	820.0
Mass	(Without) [kg]	37.0
	(With brake)[kg]	43
Heat-resistant class		155(F)
Degree of protection		IP67 (The shaft-through portion is excluded.)
Quakeproof level[m/s^2] ([G])		X:24.5(2.5), Y:29.4(3)
Axis tolerable load (Taper shaft)	Radial load (*2)[N] ([mm])	-
	Thrust load[N]	-
Axis tolerable load (Straight shaft)	Radial load (*2)[N] ([mm])	1300 (L=52.7)
	Thrust load[N]	590
Oil level (*3)[mm]		25
Absolute position encoder	16,000,000 p/rev	A74N
	1,000,000 p/rev	A51
	260,000 p/rev	A48

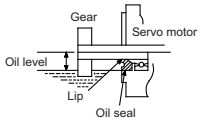
(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)



L : Length from flange installation surface to center of load weight [mm]

(*3)



Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C (with no freezing) Storage: -15°C to +70°C (with no freezing)
Ambient humidity	Operation:80% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Magnetic brake characteristics

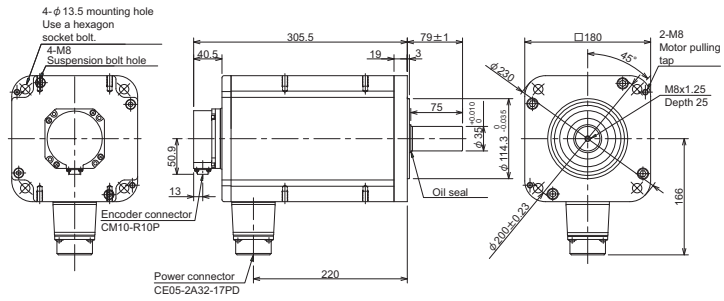
Item	Specifications
Rated voltage	24VDC
Rated current at 20°C[A]	1.4
Static friction torque[N・m]	54.9
Release delay time (*1)[s]	0.3
Braking delay time (DC OFF) (*1)[s]	0.1
Brake life (*2)[times]	20,000

(*1) This is the representative value for the initial attraction gap at 20°C.

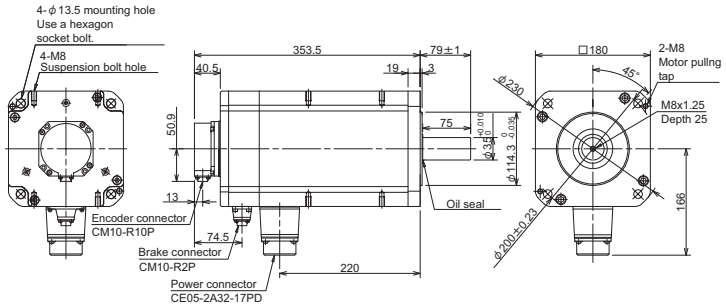
(*2) The brake gap will widen through brake lining wear caused by braking. However, the gap cannot be adjusted. Thus, the brake life is considered to be reached when adjustments are required.

Outline dimension drawings [Unit : mm]

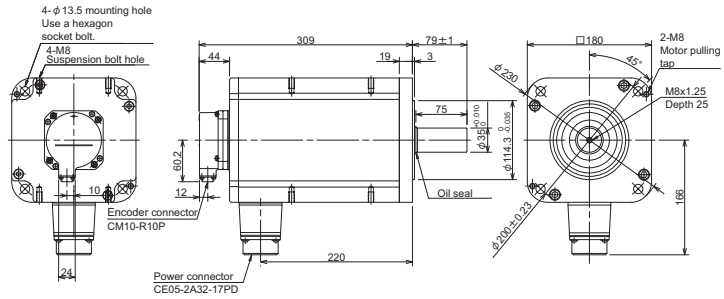
HP704S-A48



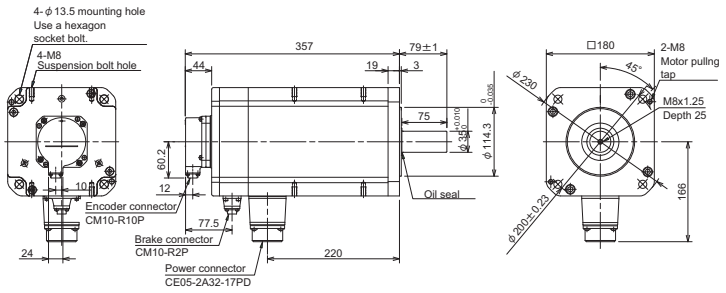
HP704BS-A48

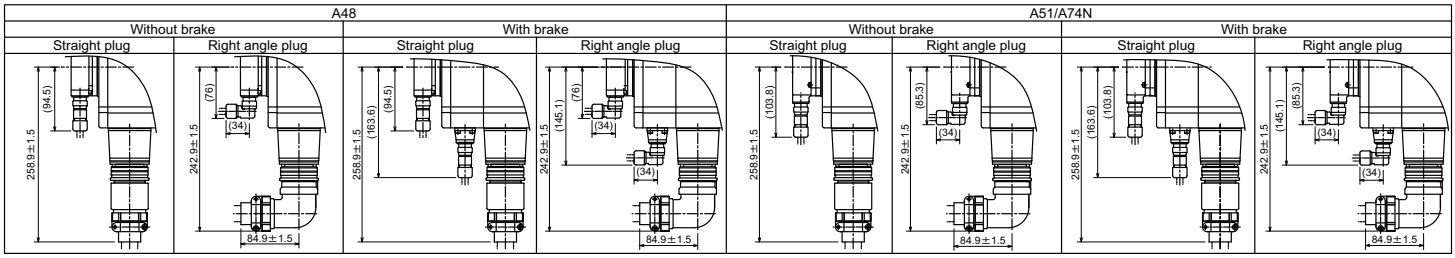


HP704S-A51,-A74N



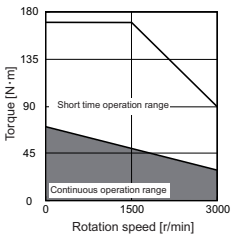
HP704BS-A51,-A74N





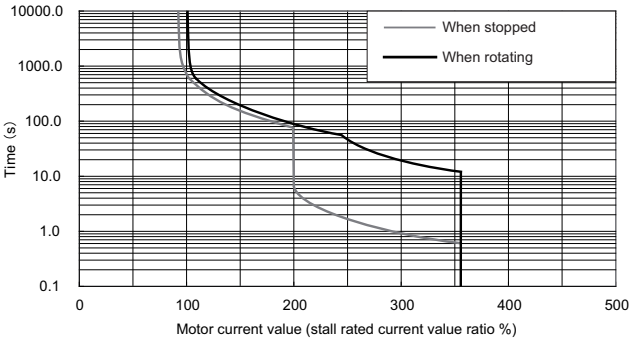
Stall torque	Rated rotation speed	Servo motor type	Explanation of type		
			(1) Magnetic brake	B	with brake
		(1) (2)		None	without brake
70.0N・m	3000r/min	HP903 □ S-xxx	(2) Encoder	XXX	Type

Torque characteristics



Servo overload protection characteristics

D series

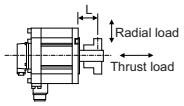


Specifications

Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-D-V1-320
	2-axis type	-
	Regenerative resistor type	-
Continuous characteristics	Rated output[kW]	9.0
	Rated current[A]	21.6
	Rated torque[N・m]	28.7
	Stall current[A]	54.0
	Stall torque[N・m]	70.0
Maximum momentary output (For power supply selection)[kW]		33.0
Rated rotation speed[r/min]		3000
Maximum rotation speed[r/min]		3000
Maximum current[A]		172.0
Maximum torque[N・m]		170.0
Power rate at continuous rated torque[kW/s]		52.0
Max. deceleration torque of dynamic brake(Tdp)[N・m]		91.73
Motor inertia[$\times 10^{-4}$ kg•m^2]		163.0
(Brake inertia)[$\times 10^{-4}$ kg•m^2]		187.0
Maximum motor shaft conversion load inertia ratio	High-speed, high-accuracy machine[$\times 10^{-4}$ kg•m^2]	675.0
	General machine tool (interpolation axis)[$\times 10^{-4}$ kg•m^2]	1125.0
	Non-interpolation axis [$\times 10^{-4}$ kg•m^2]	2250.0
Mass	(Without) [kg]	51.0
	(With brake)[kg]	61.4
Heat-resistant class		155(F)
Degree of protection		IP67 (The shaft-through portion is excluded.)
Quakeproof level[m/s^2] ([G])		X:9.8(1), Y:9.8(1)
Axis tolerable load (Taper shaft)	Radial load (*2)[N] ([mm])	-
	Thrust load[N]	-
Axis tolerable load (Straight shaft)	Radial load (*2)[N] ([mm])	2500 (L=52.7)
	Thrust load[N]	1100
Oil level (*3)[mm]		30
Absolute position encoder	16,000,000 p/rev	A74N
	1,000,000 p/rev	A51
	260,000 p/rev	A48

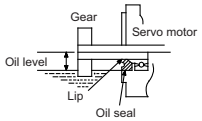
(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)



L : Length from flange installation surface to center of load weight [mm]

(*3)



Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C (with no freezing) Storage: -15°C to +70°C (with no freezing)
Ambient humidity	Operation:80% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Magnetic brake characteristics

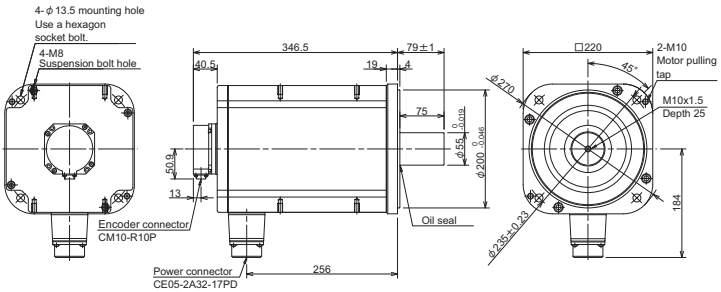
Item	Specifications
Rated voltage	24VDC
Rated current at 20°C[A]	1.7
Static friction torque[N・m]	90
Release delay time (*1)[s]	0.3
Braking delay time (DC OFF) (*1)[s]	0.1
Brake life (*2)[times]	20,000

(*1) This is the representative value for the initial attraction gap at 20°C.

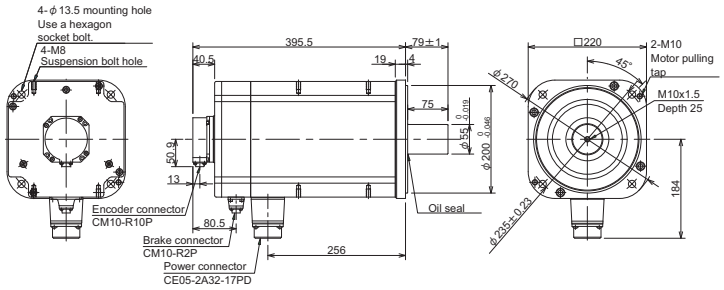
(*2) The brake gap will widen through brake lining wear caused by braking. However, the gap cannot be adjusted. Thus, the brake life is considered to be reached when adjustments are required.

Outline dimension drawings [Unit : mm]

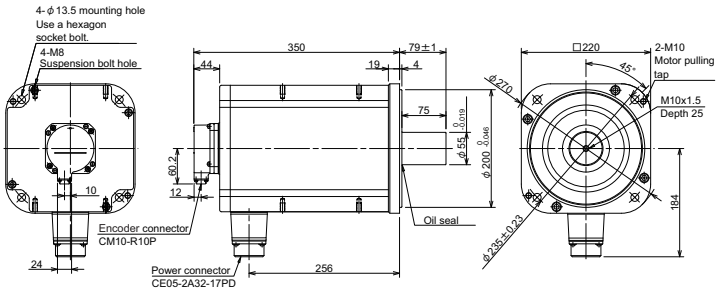
HP903S-A48



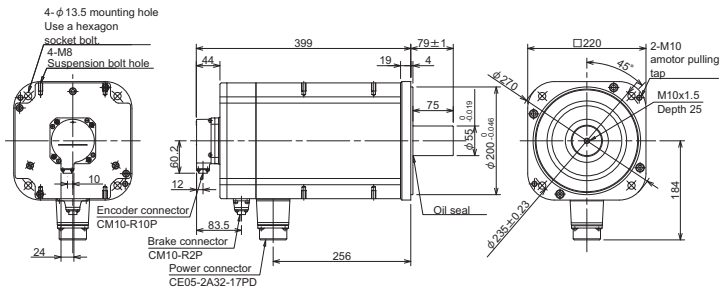
HP903BS-A48

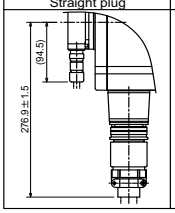
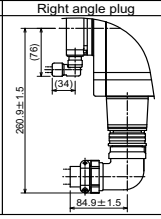
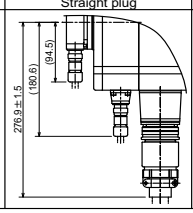
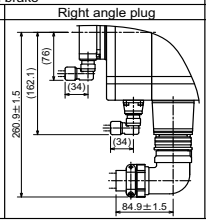
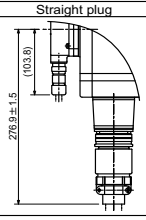
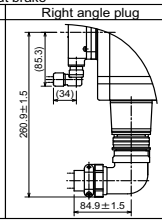
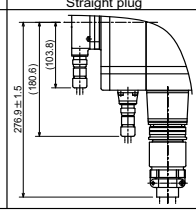
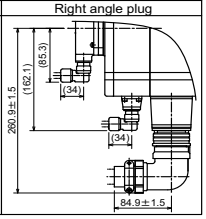


HP903S-A51,-A74N



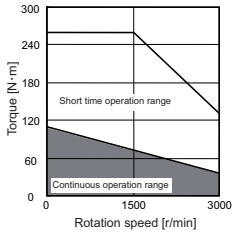
HP903BS-A51,-A74N



A48				A51/A74N			
Without brake		With brake		Without brake		With brake	
Straight plug	Right angle plug	Straight plug	Right angle plug	Straight plug	Right angle plug	Straight plug	Right angle plug
							

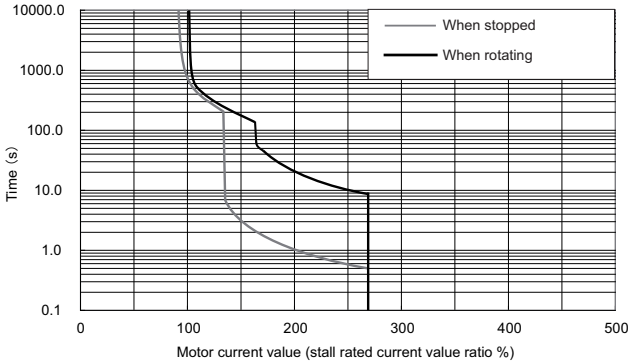
Stall torque	Rated rotation speed	Servo motor type	Explanation of type		
			(1) Magnetic brake	B	with brake
		(1) (2)		None	without brake
110.0N・m	3000r/min	HP1103 □ S-xxx	(2) Encoder	XXX	Type

Torque characteristics



Servo overload protection characteristics

D series

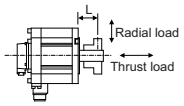


Specifications

Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-D-V1-320W
	2-axis type	-
	Regenerative resistor type	-
Continuous characteristics	Rated output[kW]	11.0
	Rated current[A]	24.6
	Rated torque[N・m]	35.0
	Stall current[A]	79.0
	Stall torque[N・m]	110.0
Maximum momentary output (For power supply selection)[kW]		50.0
Rated rotation speed[r/min]		3000
Maximum rotation speed[r/min]		3000
Maximum current[A]		212.0
Maximum torque[N・m]		260.0
Power rate at continuous rated torque[kW/s]		48.0
Max. deceleration torque of dynamic brake(Tdp)[N・m]		158.09
Motor inertia[$\times 10^{-4}$ kg•m^2]		255.0
(Brake inertia)[$\times 10^{-4}$ kg•m^2]		279.0
Maximum motor shaft conversion load inertia ratio	High-speed, high-accuracy machine[$\times 10^{-4}$ kg•m^2]	900.0
	General machine tool (interpolation axis)[$\times 10^{-4}$ kg•m^2]	1500.0
	Non-interpolation axis [$\times 10^{-4}$ kg•m^2]	3000.0
Mass	(Without) [kg]	74.0
	(With brake)[kg]	84.4
Heat-resistant class		155(F)
Degree of protection		IP67 (The shaft-through portion is excluded.)
Quakeproof level[m/s^2] ([G])		X:9.8(1), Y:9.8(1)
Axis tolerable load (Taper shaft)	Radial load (*2)[N] ([mm])	-
	Thrust load[N]	-
Axis tolerable load (Straight shaft)	Radial load (*2)[N] ([mm])	2700 (L=52.7)
	Thrust load[N]	1500
Oil level (*3)[mm]		30
Absolute position encoder	16,000,000 p/rev	A74N
	1,000,000 p/rev	A51
	260,000 p/rev	A48

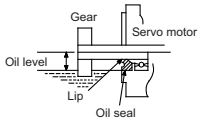
(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)



L : Length from flange installation surface to center of load weight [mm]

(*3)



Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C (with no freezing) Storage: -15°C to +70°C (with no freezing)
Ambient humidity	Operation:80% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Magnetic brake characteristics

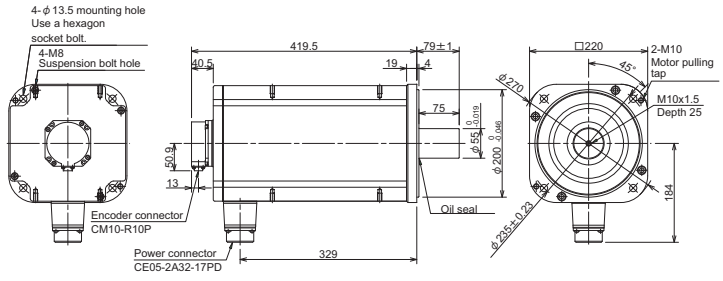
Item	Specifications
Rated voltage	24VDC
Rated current at 20°C[A]	1.7
Static friction torque[N・m]	90
Release delay time (*1)[s]	0.3
Braking delay time (DC OFF) (*1)[s]	0.1
Brake life (*2)[times]	20,000

(*1) This is the representative value for the initial attraction gap at 20°C.

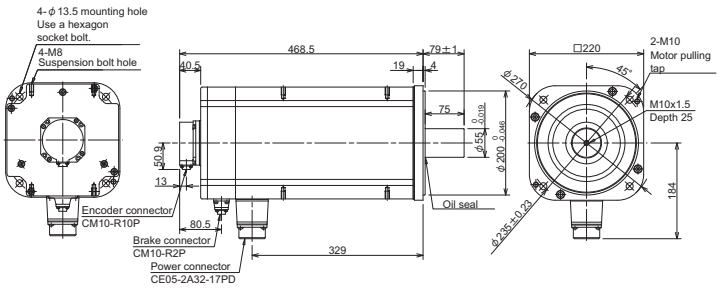
(*2) The brake gap will widen through brake lining wear caused by braking. However, the gap cannot be adjusted. Thus, the brake life is considered to be reached when adjustments are required.

Outline dimension drawings [Unit : mm]

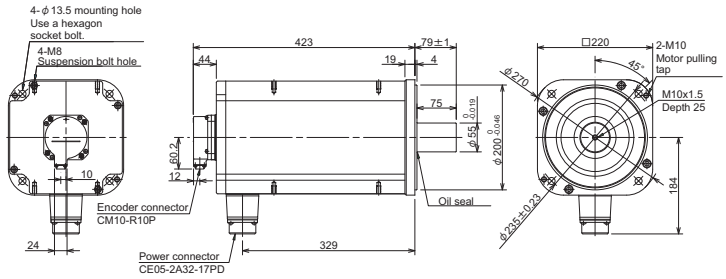
HP1103S-A48



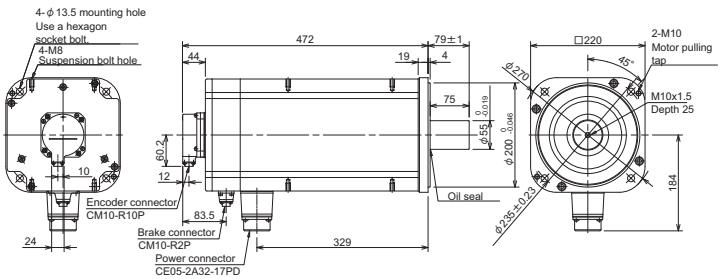
HP1103BS-A48

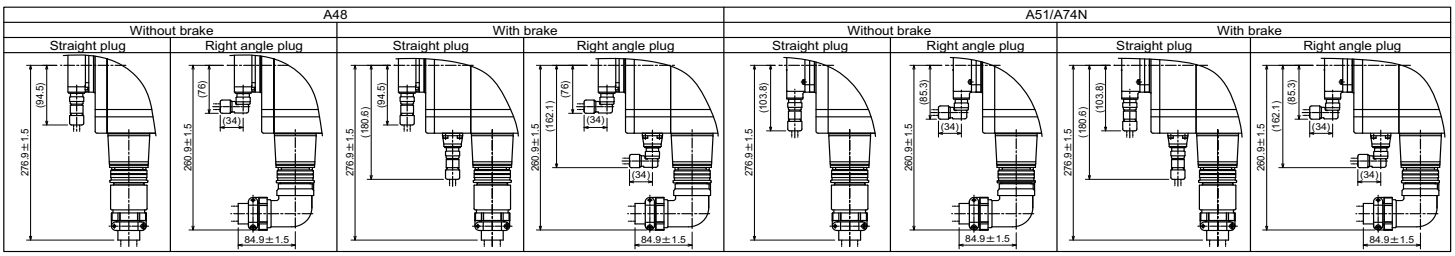


HP1103S-A51,-A74N



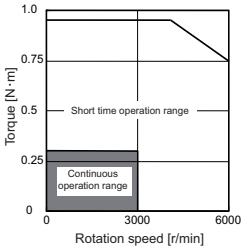
HP1103BS-A51,-A74N





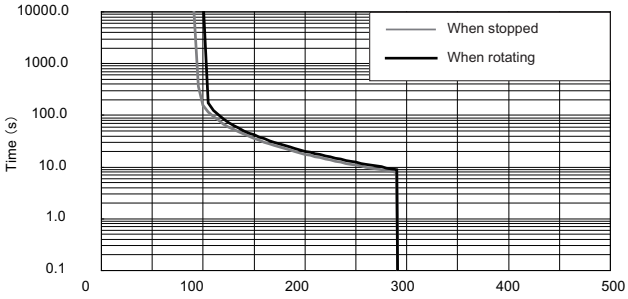
Stall torque	Rated rotation speed	Servo motor type	Explanation of type		
0.32N・m	3000r/min	HF-KP13 ☐ J-S17 (1)	(1) Magnetic brake	B	with brake
				None	without brake

Torque characteristics



Servo overload protection characteristics

SVJ3 series

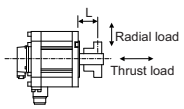


Specifications

Item		Specifications
Compatible drive unit (*1)	1-axis type	-
	2-axis type	-
	3-axis type	-
	Multi axis integrated type	-
	Regenerative resistor type	MDS-D-SVJ3-03/03NA
Continuous characteristics	Rated output[kW]	0.1
	Rated current[A]	0.8
	Rated torque[N・m]	0.32
	Stall current[A]	0.8
	Stall torque[N・m]	0.32
Maximum momentary output (For power supply selection)[kW]		0.42
Rated rotation speed[r/min]		3000
Maximum rotation speed[r/min]		6000
Maximum current[A]		2.31
Maximum torque[N・m]		0.95
Power rate at continuous rated torque[kW/s]		11.5
Max. deceleration torque of dynamic brake(Tdp)[N・m]		0.22
Motor inertia[$\times 10^{-4}$ kg•m^2]		0.088
(Brake inertia)[$\times 10^{-4}$ kg•m^2]		0.090
Maximum motor shaft conversion load inertia ratio	High-speed, high-accuracy machine[$\times 10^{-4}$ kg•m^2]	-
	General machine tool (interpolation axis)[$\times 10^{-4}$ kg•m^2]	-
	Non-interpolation axis [$\times 10^{-4}$ kg•m^2]	1.32
Mass	(Without) [kg]	0.66
	(With brake)[kg]	0.96
Heat-resistant class		130(B)
Degree of protection		IP65 (The shaft-through portion is excluded.)
Quakeproof level[m/s^2] ([G])		X:49(5), Y:49(5)
Axis tolerable load (Taper shaft)	Radial load (*2)[N] ([mm])	-
	Thrust load[N]	-
Axis tolerable load (Straight shaft)	Radial load (*2)[N] ([mm])	88 (L=25)
	Thrust load[N]	59
Oil level (*3)[mm]		9.5
Absolute position encoder	16,000,000 p/rev (A74N)	-
	1,000,000 p/rev (A51)	-
	260,000 p/rev (A48)	MDS-D-SVJ3

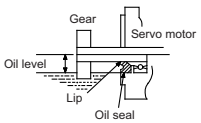
(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)



L : Length from flange installation surface to center of load weight [mm]

(*3)



Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C (with no freezing) Storage: -15°C to +70°C (with no freezing)
Ambient humidity	Operation:80% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Magnetic brake characteristics

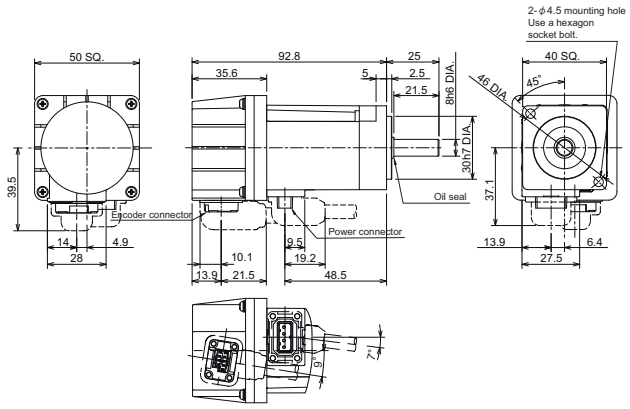
Item	Specifications
Rated voltage	24VDC
Rated current at 20°C[A]	0.26
Static friction torque[N・m]	0.002
Release delay time (*1)[s]	0.03
Braking delay time (DC OFF) (*1)[s]	0.01
Brake life (*2)[times]	20,000

(*1) This is the representative value for the initial attraction gap at 20°C.

(*2) The brake gap will widen through brake lining wear caused by braking. However, the gap cannot be adjusted. Thus, the brake life is considered to be reached when adjustments are required.

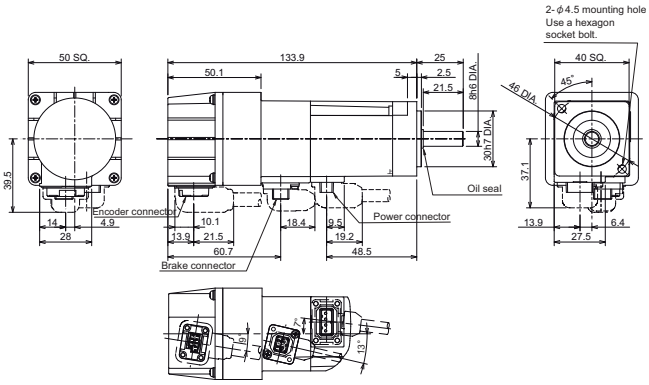
Outline dimension drawings [Unit : mm]

HF-KP13J-S17



(Note)Lead out in opposite direction of motor shaft cannot be used for power cable.

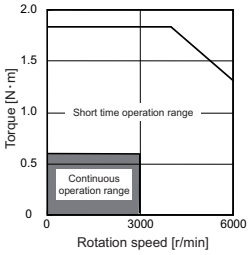
HF-KP13BJ-S17



(Note)Lead out in opposite direction of motor shaft cannot be used for power cable.

Stall torque	Rated rotation speed	Servo motor type	Explanation of type		
			(1) Magnetic brake	B	with brake
		(1)		None	without brake
0.64N・m	3000r/min	HF-KP23 □ JW04-S6			

Torque characteristics

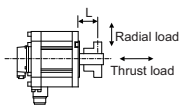


Specifications

Item		Specifications	
Compatible drive unit (*1)	1-axis type	-	MDS-D-V1-20
	2-axis type	-	MDS-D-V2-2020 (L,M) MDS-D-V2-4020 (M)
	3-axis type	-	MDS-DM-V3-202020 (L,M,S)
	Multi axis integrated type	-	-
	Regenerative resistor type	MDS-D-SVJ3-03/03NA	-
Continuous characteristics	Rated output[kW]	0.2	0.2
	Rated current[A]	1.4	1.4
	Rated torque[N・m]	0.64	0.64
	Stall current[A]	1.4	1.4
	Stall torque[N・m]	0.64	0.64
Maximum momentary output (For power supply selection)[kW]		0.72	0.72
Rated rotation speed[r/min]		3000	3000
Maximum rotation speed[r/min]		6000	6000
Maximum current[A]		4.3	4.3
Maximum torque[N・m]		1.9	1.9
Power rate at continuous rated torque[kW/s]		16.9	16.9
Max. deceleration torque of dynamic brake(Tdp)[N・m]		0.52	1.04
Motor inertia[$\times 10^{-4}$ kg•m^2]		0.23	0.23
(Brake inertia)[$\times 10^{-4}$ kg•m^2]		0.31	0.31
Maximum motor shaft conversion load inertia ratio	High-speed, high-accuracy machine[$\times 10^{-4}$ kg•m^2]	-	-
	General machine tool (interpolation axis)[$\times 10^{-4}$ kg•m^2]	-	-
	Non-interpolation axis [$\times 10^{-4}$ kg•m^2]	3.45	3.45
Mass	(Without) [kg]	1.2	1.2
	(With brake)[kg]	1.8	1.8
Heat-resistant class		130(B)	130(B)
Degree of protection		IP65 (The shaft-through portion is excluded.)	IP65 (The shaft-through portion is excluded.)
Quakeproof level[m/s^2] ([G])		X:49(5), Y:49(5)	X:49(5), Y:49(5)
Axis tolerable load (Taper shaft)	Radial load (*2)[N] ([mm])	-	-
	Thrust load[N]	-	-
Axis tolerable load (Straight shaft)	Radial load (*2)[N] ([mm])	245 (L=30)	245 (L=30)
	Thrust load[N]	98	98
Oil level (*3)[mm]		12.5	12.5
Absolute position encoder	16,000,000 p/rev (A74N)	-	-
	1,000,000 p/rev (A51)	-	-
	260,000 p/rev (A48)	MDS-D-SVJ3	MDS-D/DM

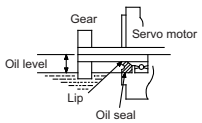
(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)



L : Length from flange installation surface to center of load weight [mm]

(*3)



Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C (with no freezing) Storage: -15°C to +70°C (with no freezing)
Ambient humidity	Operation:80% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Magnetic brake characteristics

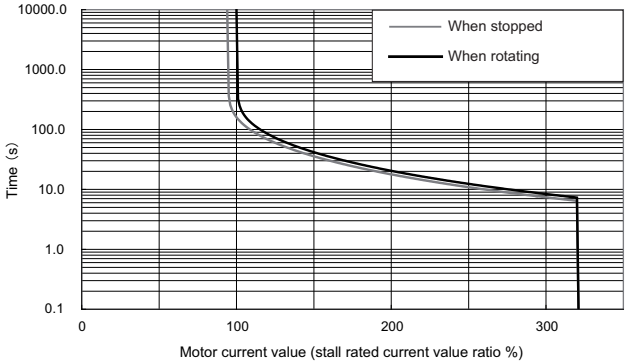
Item	Specifications
Rated voltage	24VDC
Rated current at 20°C[A]	0.33
Static friction torque[N・m]	1.3
Release delay time (*1)[s]	0.03
Braking delay time (DC OFF) (*1)[s]	0.02
Brake life (*2)[times]	20,000

(*1) This is the representative value for the initial attraction gap at 20°C.

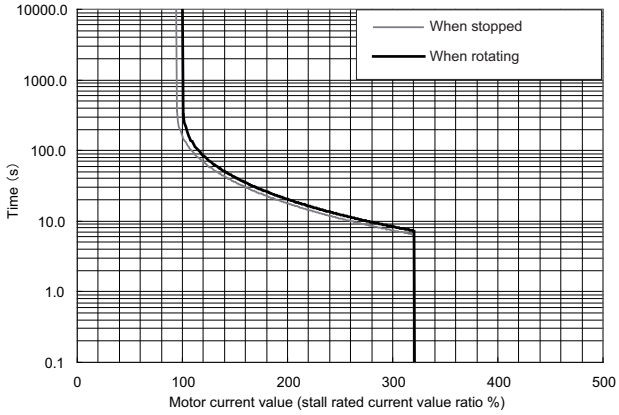
(*2) The brake gap will widen through brake lining wear caused by braking. However, the gap cannot be adjusted. Thus, the brake life is considered to be reached when adjustments are required.

Servo overload protection characteristics

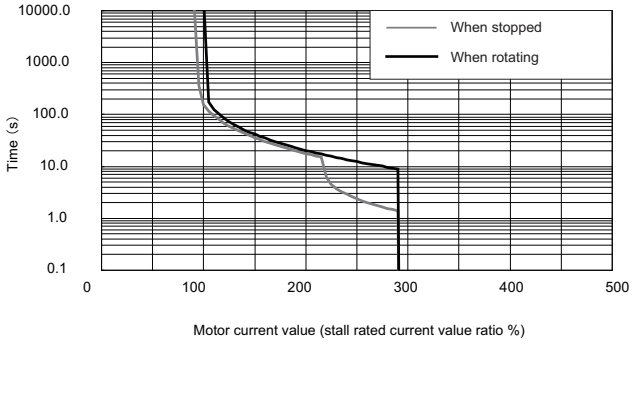
D series



MDS-DM-V3-202020

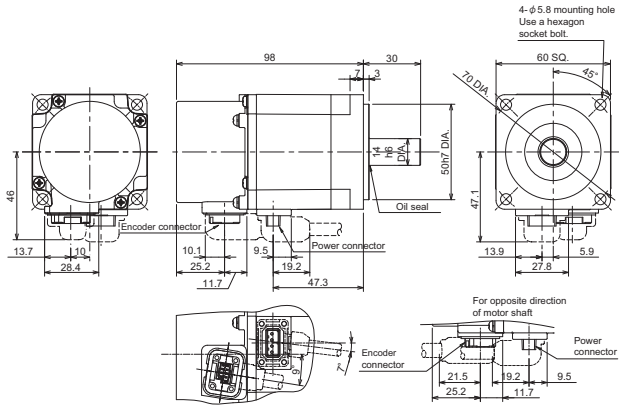


SVJ3 Series

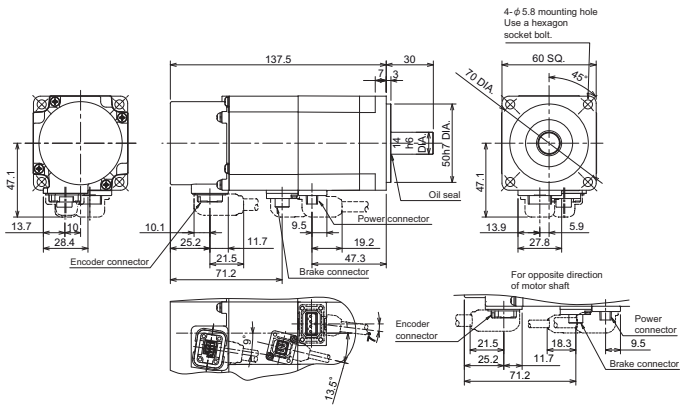


Outline dimension drawings [Unit : mm]

HF-KP23JW04-S6

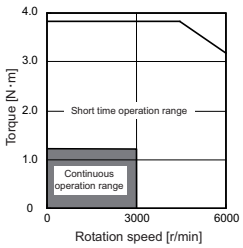


HF-KP23BJW04-S6



Stall torque	Rated rotation speed	Servo motor type	Explanation of type		
			(1) Magnetic brake	B	with brake
		(1)		None	without brake
1.3N・m	3000r/min	HF-KP43 □ JW04-S6			

Torque characteristics

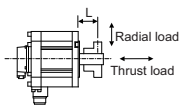


Specifications

Item		Specifications	
Compatible drive unit (*1)	1-axis type	-	MDS-D-V1-20
	2-axis type	-	MDS-D-V2-2020 (L,M) MDS-D-V2-4020 (M)
	3-axis type	-	MDS-DM-V3-202020 (L,M,S)
	Multi axis integrated type	-	-
	Regenerative resistor type	MDS-D-SVJ3-04/04NA	-
Continuous characteristics	Rated output[kW]	0.4	0.4
	Rated current[A]	2.9	2.9
	Rated torque[N・m]	1.3	1.3
	Stall current[A]	2.9	2.9
	Stall torque[N・m]	1.3	1.3
Maximum momentary output (For power supply selection)[kW]		1.72	1.72
Rated rotation speed[r/min]		3000	3000
Maximum rotation speed[r/min]		6000	6000
Maximum current[A]		8.5	8.5
Maximum torque[N・m]		3.8	3.8
Power rate at continuous rated torque[kW/s]		38.6	38.6
Max. deceleration torque of dynamic brake(Tdp)[N・m]		1.30	2.60
Motor inertia[$\times 10^{-4}$ kg•m^2]		0.42	0.42
(Brake inertia)[$\times 10^{-4}$ kg•m^2]		0.50	0.50
Maximum motor shaft conversion load inertia ratio	High-speed, high-accuracy machine[$\times 10^{-4}$ kg•m^2]	-	-
	General machine tool (interpolation axis)[$\times 10^{-4}$ kg•m^2]	-	-
	Non-interpolation axis [$\times 10^{-4}$ kg•m^2]	6.3	6.3
Mass	(Without) [kg]	1.7	1.7
	(With brake)[kg]	2.3	2.3
Heat-resistant class		130(B)	130(B)
Degree of protection		IP65 (The shaft-through portion is excluded.)	IP65 (The shaft-through portion is excluded.)
Quakeproof level[m/s^2] ([G])		X:49(5), Y:49(5)	X:49(5), Y:49(5)
Axis tolerable load (Taper shaft)	Radial load (*2)[N] ([mm])	-	-
	Thrust load[N]	-	-
Axis tolerable load (Straight shaft)	Radial load (*2)[N] ([mm])	245 (L=30)	245 (L=30)
	Thrust load[N]	98	98
Oil level (*3)[mm]		12.5	12.5
Absolute position encoder	16,000,000 p/rev (A74N)	-	-
	1,000,000 p/rev (A51)	-	-
	260,000 p/rev (A48)	MDS-D-SVJ3	MDS-D/DM

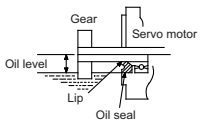
(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)



L : Length from flange installation surface to center of load weight [mm]

(*3)



Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C (with no freezing) Storage: -15°C to +70°C (with no freezing)
Ambient humidity	Operation:80% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Magnetic brake characteristics

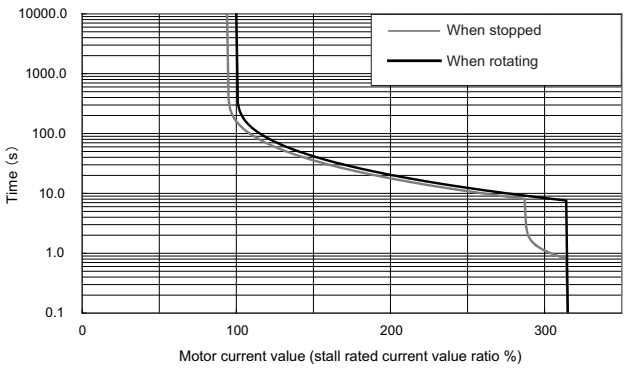
Item	Specifications
Rated voltage	24VDC
Rated current at 20°C[A]	0.33
Static friction torque[N・m]	1.3
Release delay time (*1)[s]	0.03
Braking delay time (DC OFF) (*1)[s]	0.02
Brake life (*2)[times]	20,000

(*1) This is the representative value for the initial attraction gap at 20°C.

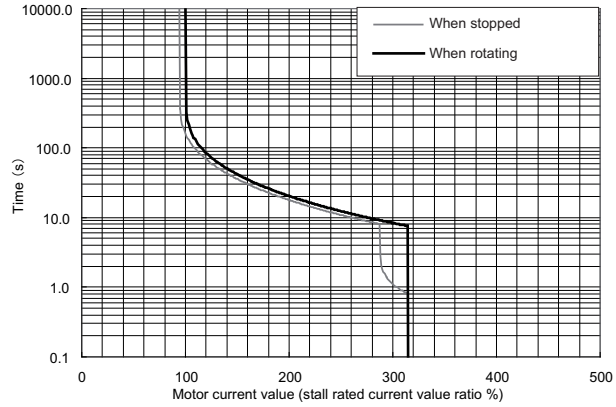
(*2) The brake gap will widen through brake lining wear caused by braking. However, the gap cannot be adjusted. Thus, the brake life is considered to be reached when adjustments are required.

Servo overload protection characteristics

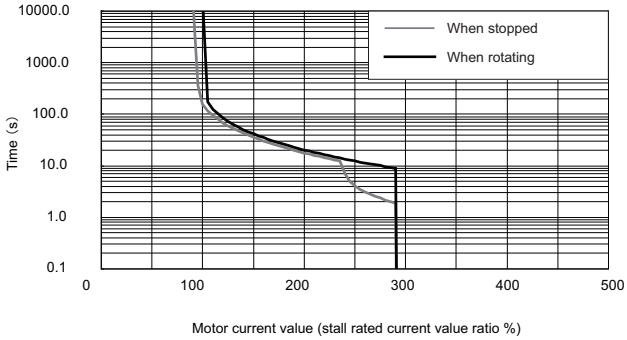
D series



MDS-DM-V3-202020

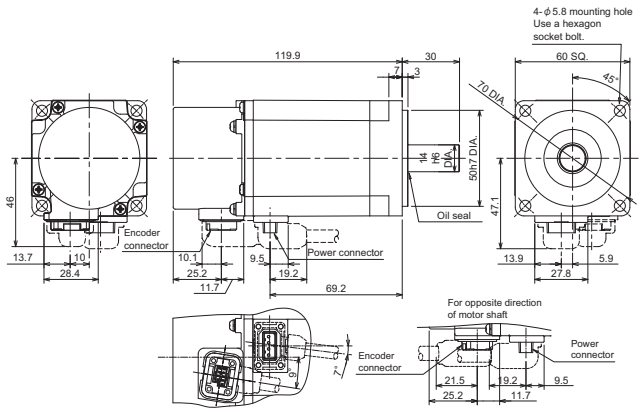


SVJ3 Series

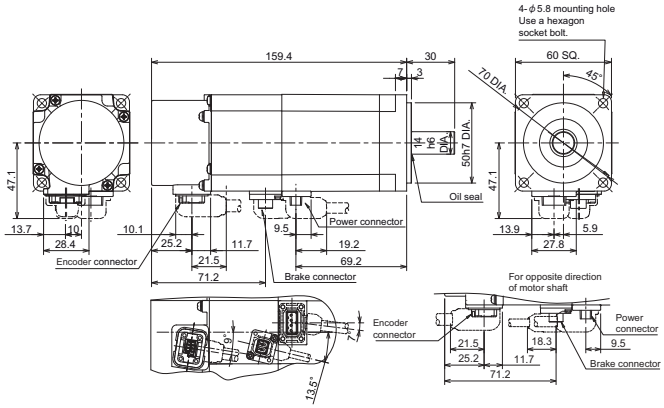


Outline dimension drawings [Unit : mm]

HF-KP43JW04-S6

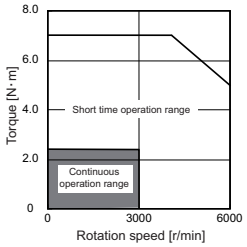


HF-KP43BJW04-S6



Stall torque	Rated rotation speed	Servo motor type	Explanation of type		
			(1) Magnetic brake	B	with brake
				None	without brake
2.4N・m	3000r/min	HF-KP73 (1) □ JW04-S6			

Torque characteristics

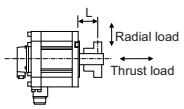


Specifications

Item		Specifications	
Compatible drive unit (*1)	1-axis type	-	MDS-D-V1-20
	2-axis type	-	MDS-D-V2-2020 (L,M) MDS-D-V2-4020 (M)
	3-axis type	-	MDS-DM-V3-202020 (L,M,S)
	Multi axis integrated type	-	-
	Regenerative resistor type	MDS-D-SVJ3-07/07NA	-
Continuous characteristics	Rated output[kW]	0.75	0.75
	Rated current[A]	5.2	5.2
	Rated torque[N・m]	2.4	2.4
	Stall current[A]	5.2	5.2
	Stall torque[N・m]	2.4	2.4
Maximum momentary output (For power supply selection)[kW]		2.85	2.85
Rated rotation speed[r/min]		3000	3000
Maximum rotation speed[r/min]		6000	6000
Maximum current[A]		15.5	15.5
Maximum torque[N・m]		7.2	7.2
Power rate at continuous rated torque[kW/s]		39.9	39.9
Max. deceleration torque of dynamic brake(Tdp)[N・m]		1.48	2.96
Motor inertia[$\times 10^{-4}$ kg•m^2]		1.43	1.43
(Brake inertia)[$\times 10^{-4}$ kg•m^2]		1.63	1.63
Maximum motor shaft conversion load inertia ratio	High-speed, high-accuracy machine[$\times 10^{-4}$ kg•m^2]	-	-
	General machine tool (interpolation axis)[$\times 10^{-4}$ kg•m^2]	-	-
	Non-interpolation axis [$\times 10^{-4}$ kg•m^2]	21.45	21.45
Mass	(Without) [kg]	2.9	2.9
	(With brake)[kg]	4.1	4.1
Heat-resistant class		130(B)	130(B)
Degree of protection		IP65 (The shaft-through portion is excluded.)	IP65 (The shaft-through portion is excluded.)
Quakeproof level[m/s^2] ([G])		X:49(5), Y:49(5)	X:49(5), Y:49(5)
Axis tolerable load (Taper shaft)	Radial load (*2)[N] ([mm])	-	-
	Thrust load[N]	-	-
Axis tolerable load (Straight shaft)	Radial load (*2)[N] ([mm])	392 (L=40)	392 (L=40)
	Thrust load[N]	147	147
Oil level (*3)[mm]		15	15
Absolute position encoder	16,000,000 p/rev (A74N)	-	-
	1,000,000 p/rev (A51)	-	-
	260,000 p/rev (A48)	MDS-D-SVJ3	MDS-D/DM

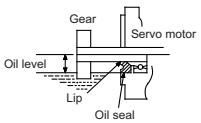
(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)



L : Length from flange installation surface to center of load weight [mm]

(*3)



Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C (with no freezing) Storage: -15°C to +70°C (with no freezing)
Ambient humidity	Operation:80% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Magnetic brake characteristics

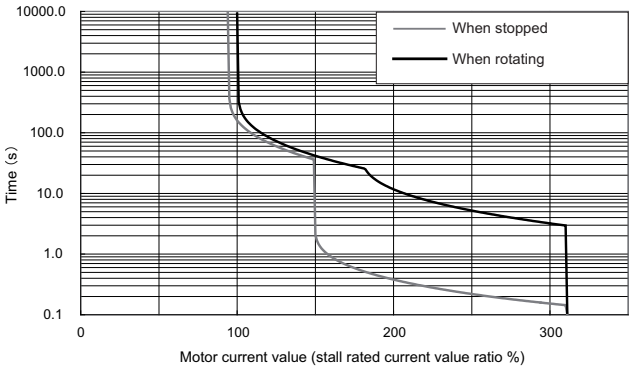
Item	Specifications
Rated voltage	24VDC
Rated current at 20°C[A]	0.42
Static friction torque[N・m]	2.4
Release delay time (*1)[s]	0.04
Braking delay time (DC OFF) (*1)[s]	0.02
Brake life (*2)[times]	20,000

(*1) This is the representative value for the initial attraction gap at 20°C.

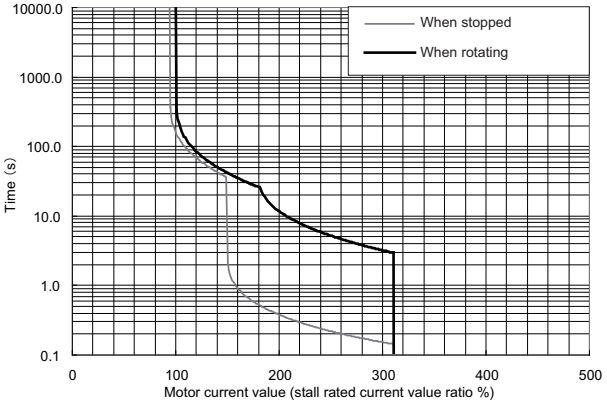
(*2) The brake gap will widen through brake lining wear caused by braking. However, the gap cannot be adjusted. Thus, the brake life is considered to be reached when adjustments are required.

Servo overload protection characteristics

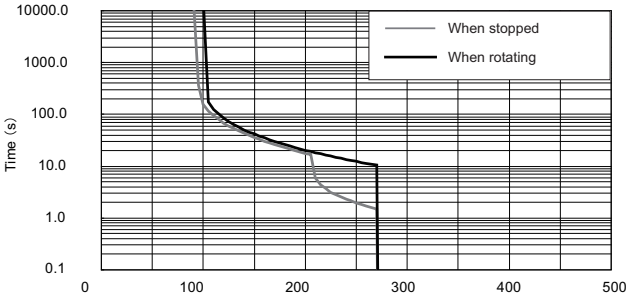
D series



MDS-DM-V3-202020

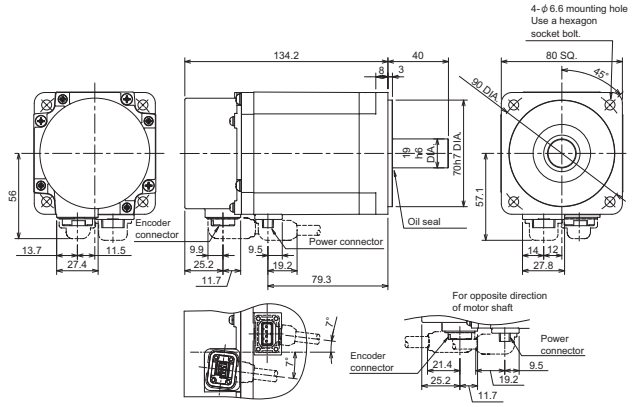


SVJ3 Series

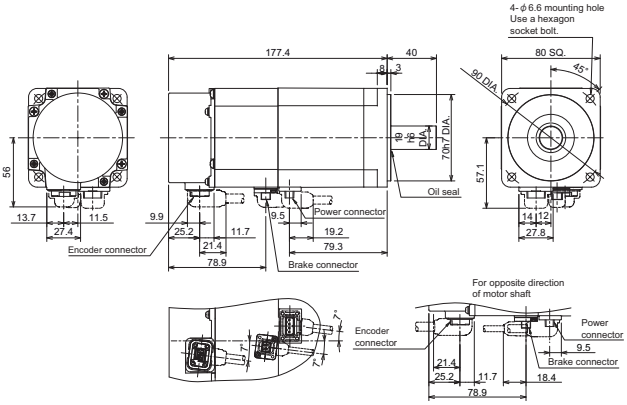


Outline dimension drawings [Unit : mm]

HF-KP73JW04-S6



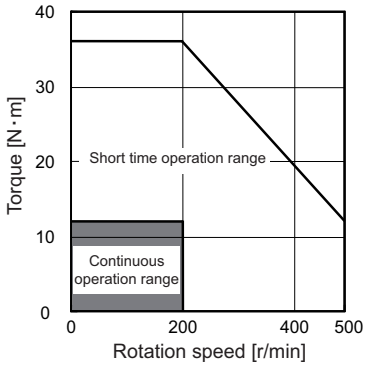
HF-KP73BJW04-S6



Direct drive motor

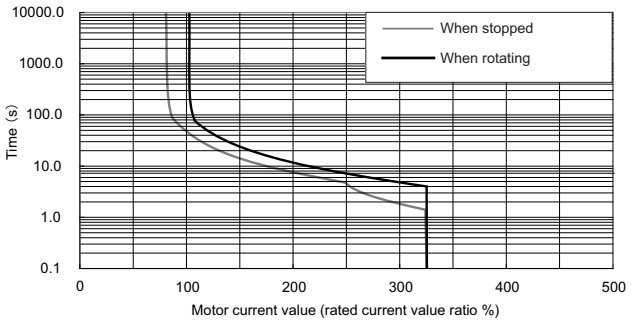
Rated torque	Rated rotation speed	Direct-drive motor type for primary side	
12N•m	200r/min	TM-RBP012C20	

Torque characteristics

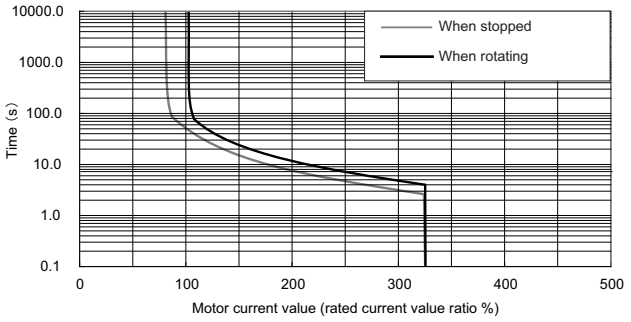


Servo overload protection characteristics

D series



SVJ3 series



Specifications

Item		Specifications
Compatible servo drive unit type (*1)	1-axis type	MDS-D-V1-40
	2-axis type	MDS-D-V2-4020 (L) MDS-D-V2-4040 (L,M) MDS-D-V2-8040 (M)
	Regenerative resistor type	MDS-D-SVJ3-10/10NA
Continuous characteristics	Rated output [W]	252
	Rated current [A]	6.1
	Rated torque [N•m]	12
Power facility capacity [kVA]		1.07
Rated rotation speed [r/min]		200
Maximum rotation speed [r/min]		500
Maximum current [A]		18
Maximum torque [N•m]		36
Power rate at continuous rated torque [kW/s]		65.4
Rotor inertia [kg•cm^2]		22
Degree of protection		IP00
Required cooling capacity [kW]		0.5
Cooling water volume		Min: 5 l/min Max: 6 l/min at 20°C
Dimensions [mm]	Primary side outer diameter	DIA 130
	Secondary side inner diameter	DIA 56
	Height	76
Mass [kg]	Primary side (coil)	3.9
	Secondary side (magnet)	1.7
Heat-resistant class		155(F)

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

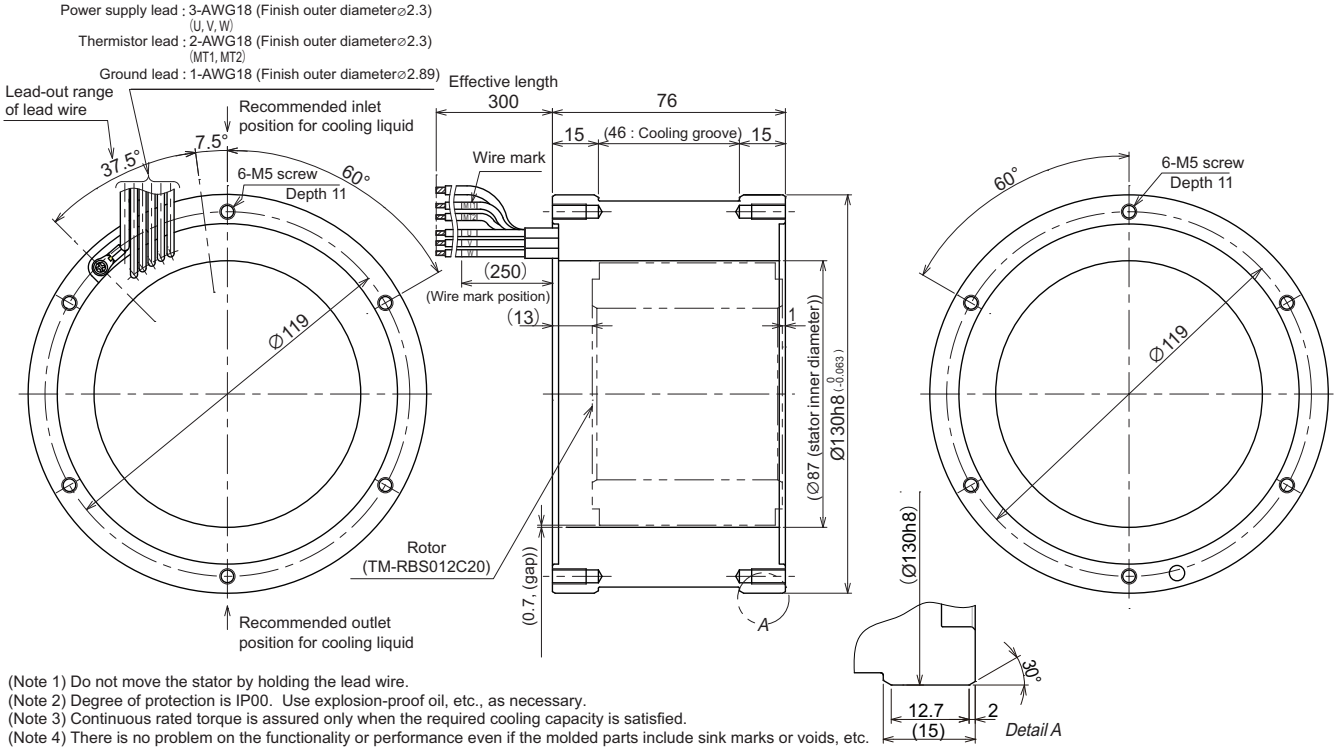
(*2) The above characteristics values are representative values. The maximum current and maximum torque are the values when combined with the drive unit.

Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C (with no freezing) Storage: -15°C to +70°C (with no freezing)
Ambient humidity	Operation:80% RH or less (with no dew condensation) Storage: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas or dust No oil or water splash
Vibration	5G or less
Altitude	1000m or less above sea level

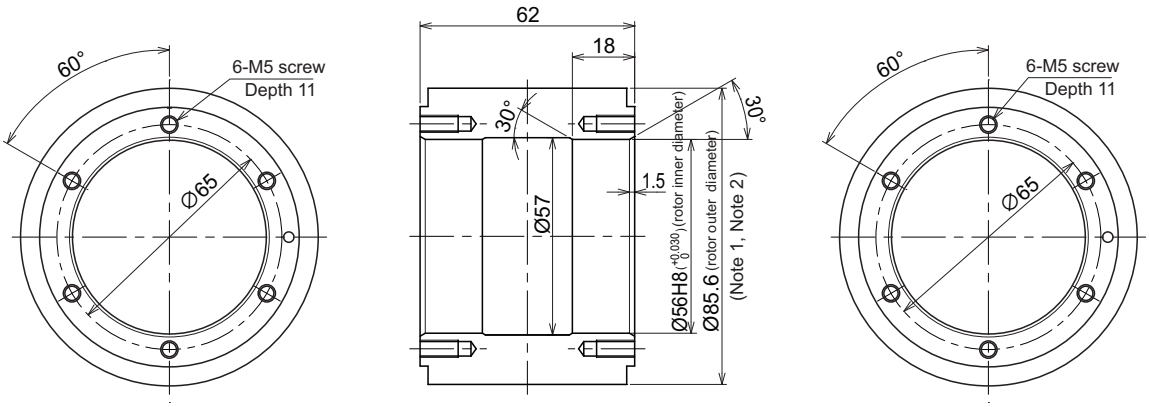
Outline dimension drawings [Unit : mm]

TM-RBP012C20



(Note 1) Do not move the stator by holding the lead wire.
(Note 2) Degree of protection is IP00. Use explosion-proof oil, etc., as necessary.
(Note 3) Continuous rated torque is assured only when the required cooling capacity is satisfied.
(Note 4) There is no problem on the functionality or performance even if the molded parts include sink marks or voids, etc.

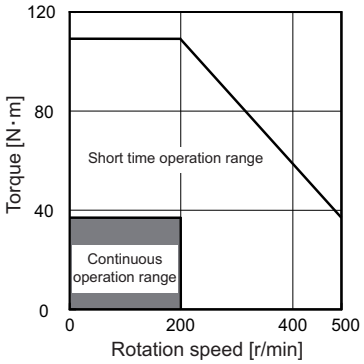
TM-RBS012C20



(Note 1) Deliverable rotors are magnetized. Please note the magnetic attraction.
(Note 2) Take special care for the magnet part not to hit against a thing (A crack or chip may occur).
(Note 3) Degree of protection is IP00. Use explosion-proof oil, etc., as necessary.
(Note 4) There is no problem on the functionality or performance even if the molded parts include sink marks or voids, etc.

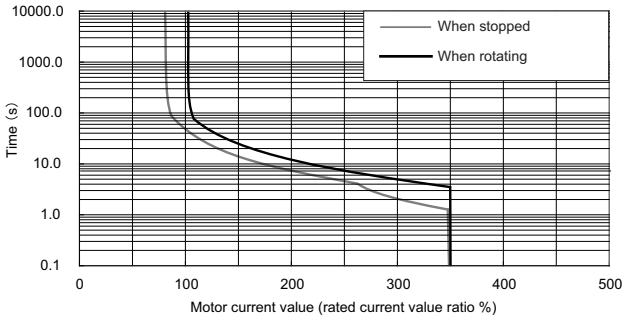
Rated torque	Rated rotation speed	Direct-drive motor type for primary side	
36N•m	200r/min	TM-RBP036E20	

Torque characteristics

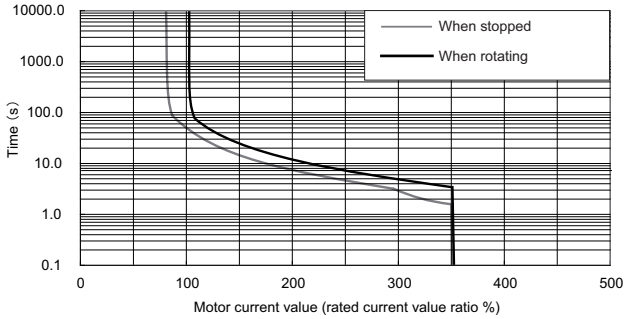


Servo overload protection characteristics

D series



SVJ3 series



Specifications

Item		Specifications
Compatible servo drive unit type (*1)	1-axis type	MDS-D-V1-80
	2-axis type	MDS-D-V2-8040 (L) MDS-D-V2-8080 (L,M) MDS-D-V2-16080 (M)
	Regenerative resistor type	MDS-D-SVJ3-20/20NA
Continuous characteristics	Rated output [W]	754
	Rated current [A]	12
	Rated torque [N•m]	36
Power facility capacity [kVA]		2.08
Rated rotation speed [r/min]		200
Maximum rotation speed [r/min]		500
Maximum current [A]		36
Maximum torque [N•m]		108
Power rate at continuous rated torque [kW/s]		102
Rotor inertia [kg•cm^2]		127
Degree of protection		IP00
Required cooling capacity [kW]		0.7
Cooling water volume		Min: 5 l/min Max: 6 l/min at 20°C
Dimensions [mm]	Primary side outer diameter	DIA 180
	Secondary side inner diameter	DIA 100
	Height	91
Mass [kg]	Primary side (coil)	7.1
	Secondary side (magnet)	3.7
Heat-resistant class		155(F)

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

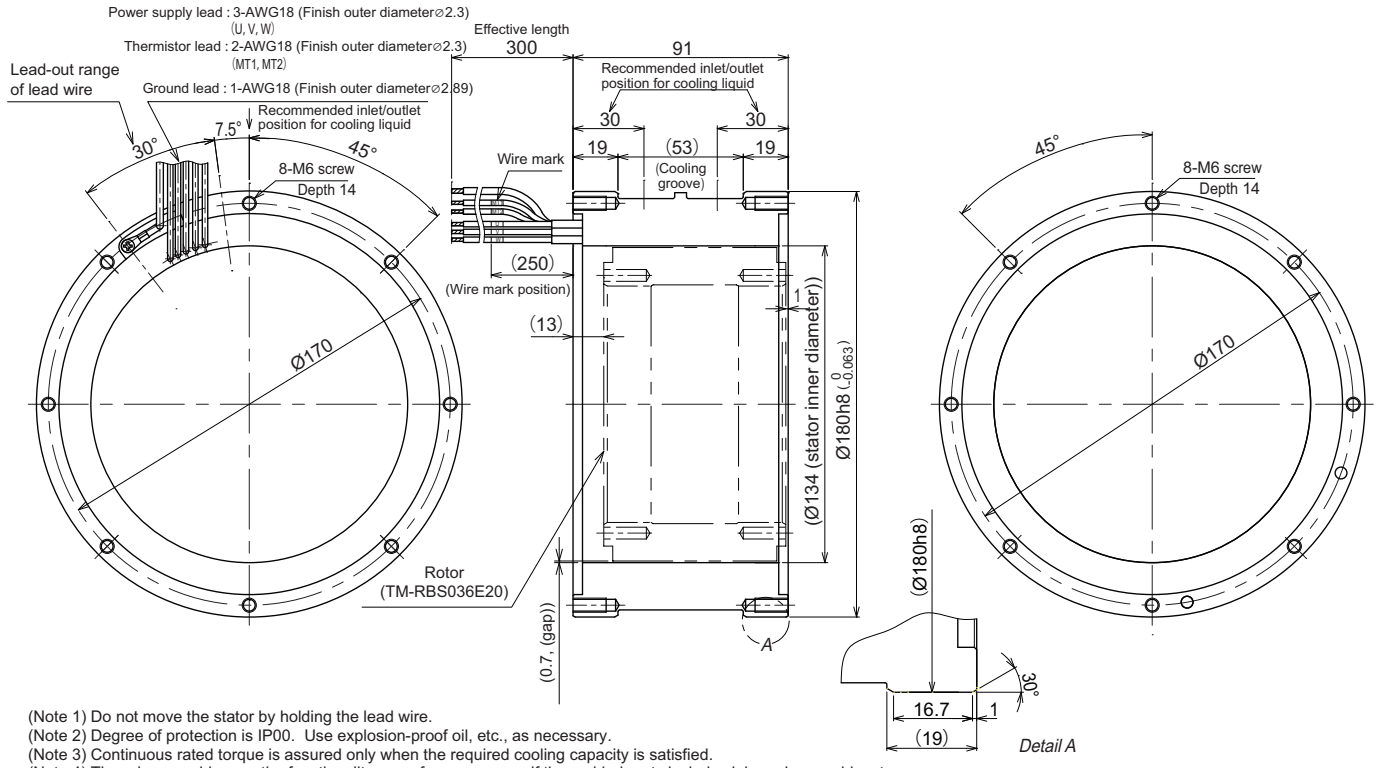
(*2) The above characteristics values are representative values. The maximum current and maximum torque are the values when combined with the drive unit.

Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C (with no freezing) Storage: -15°C to +70°C (with no freezing)
Ambient humidity	Operation:80% RH or less (with no dew condensation) Storage: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas or dust No oil or water splash
Vibration	5G or less
Altitude	1000m or less above sea level

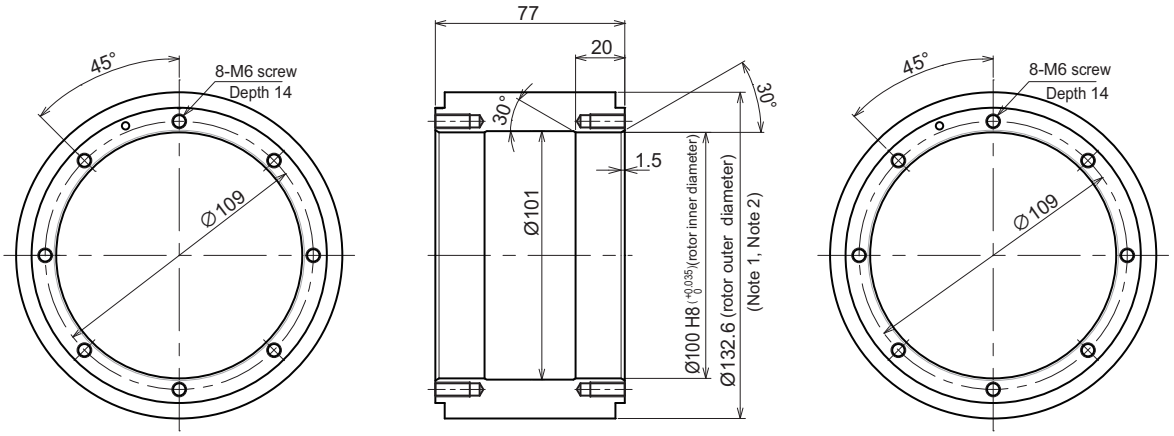
Outline dimension drawings [Unit : mm]

TM-RBP036E20



(Note 1) Do not move the stator by holding the lead wire.
(Note 2) Degree of protection is IP00. Use explosion-proof oil, etc., as necessary.
(Note 3) Continuous rated torque is assured only when the required cooling capacity is satisfied.
(Note 4) There is no problem on the functionality or performance even if the molded parts include sink marks or voids, etc.

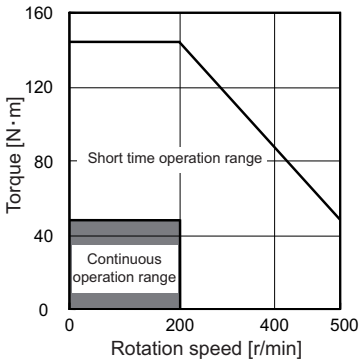
TM-RBS036E20



(Note 1) Deliverable rotors are magnetized. Please note the magnetic attraction.
(Note 2) Take special care for the magnet part not to hit against a thing (A crack or chip may occur).
(Note 3) Degree of protection is IP00. Use explosion-proof oil, etc., as necessary.
(Note 4) There is no problem on the functionality or performance even if the molded parts include sink marks or voids, etc.

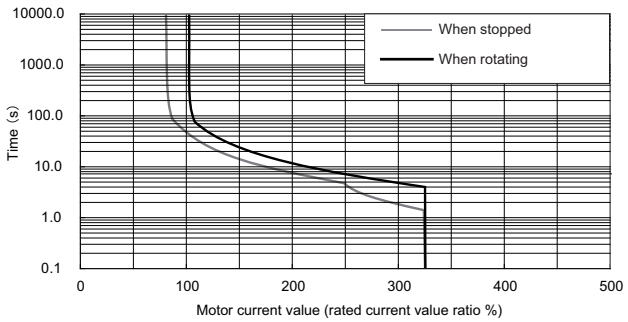
Rated torque	Rated rotation speed	Direct-drive motor type for primary side	
48N•m	200r/min	TM-RBP048G20	

Torque characteristics



Servo overload protection characteristics

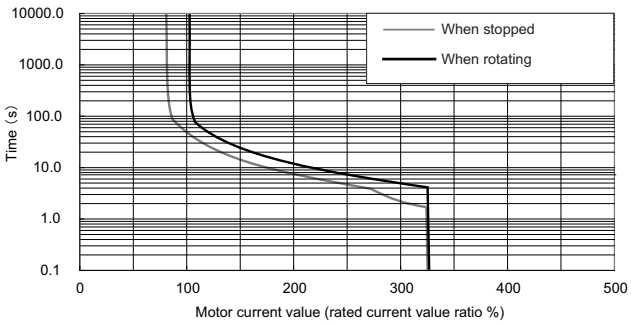
D series



Specifications

Item		Specifications
Compatible servo drive unit type (*1)	1-axis type	MDS-D-V1-80
	2-axis type	MDS-D-V2-8040 (L) MDS-D-V2-8080 (L,M) MDS-D-V2-16080 (M)
	Regenerative resistor type	MDS-D-SVJ3-20/20NA
Continuous characteristics	Rated output [W]	1005
	Rated current [A]	12
	Rated torque [N•m]	48
Power facility capacity [kVA]		2.01
Rated rotation speed [r/min]		200
Maximum rotation speed [r/min]		500
Maximum current [A]		36
Maximum torque [N•m]		144
Power rate at continuous rated torque [kW/s]		82.2
Rotor inertia [kg•cm^2]		280
Degree of protection		IP00
Required cooling capacity [kW]		0.4
Cooling water volume		Min: 5 l/min Max: 6 l/min at 20°C
Dimensions [mm]	Primary side outer diameter	DIA 230
	Secondary side inner diameter	DIA 130
	Height	80
Mass [kg]	Primary side (coil)	10
	Secondary side (magnet)	5
Heat-resistant class		155(F)

SVJ3 series



(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

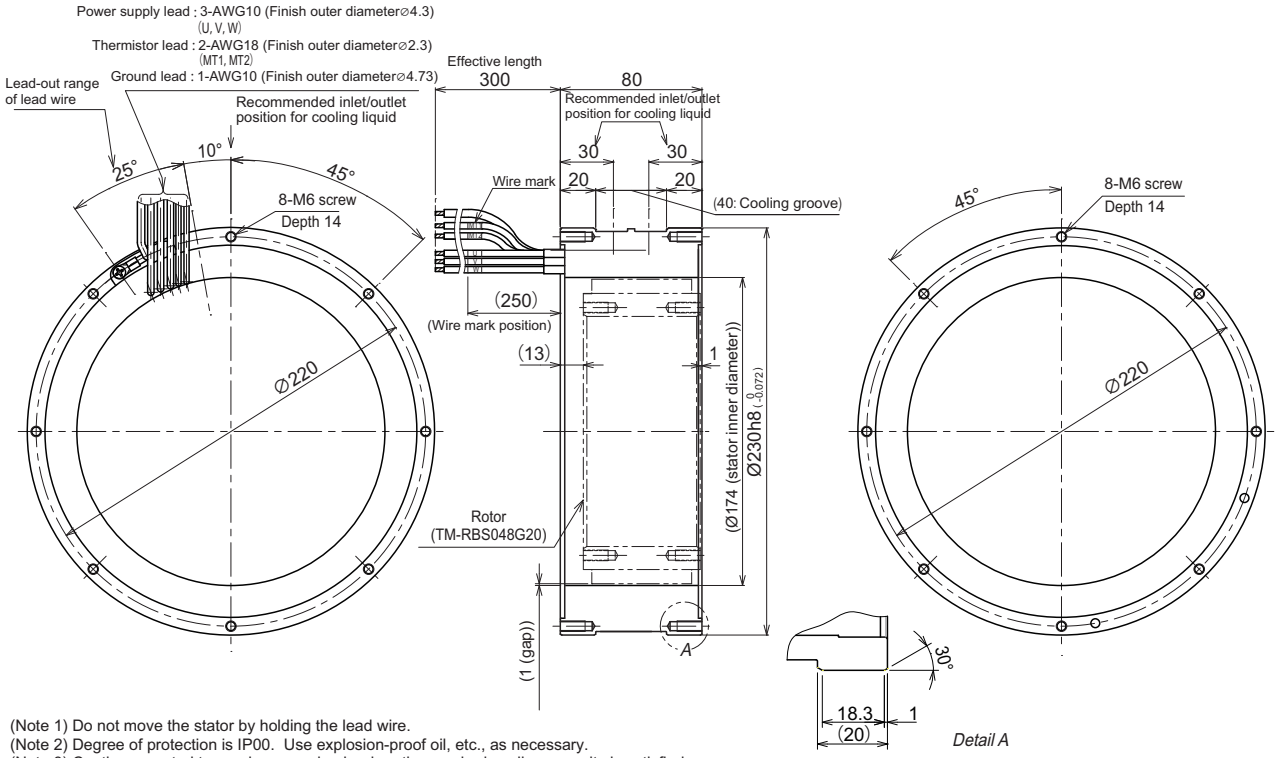
(*2) The above characteristics values are representative values. The maximum current and maximum torque are the values when combined with the drive unit.

Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C (with no freezing) Storage: -15°C to +70°C (with no freezing)
Ambient humidity	Operation:80% RH or less (with no dew condensation) Storage: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas or dust No oil or water splash
Vibration	5G or less
Altitude	1000m or less above sea level

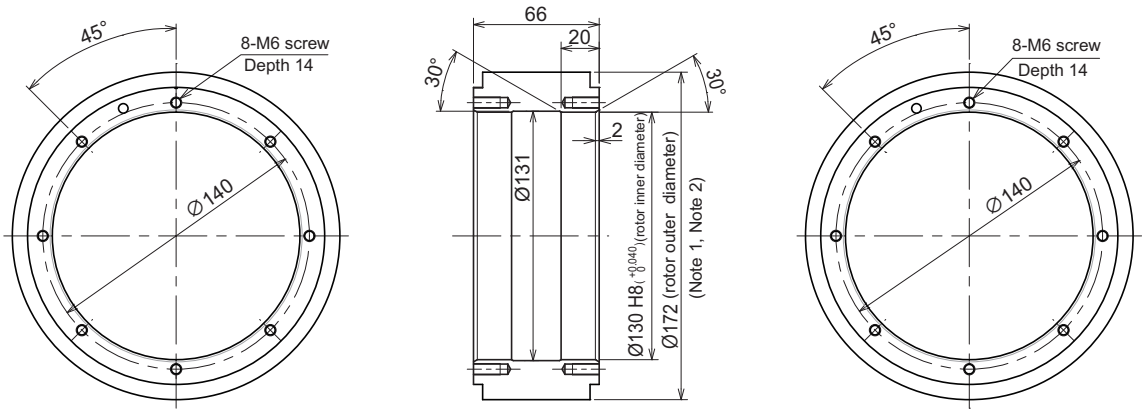
Outline dimension drawings [Unit : mm]

TM-RBP048G20



(Note 1) Do not move the stator by holding the lead wire.
(Note 2) Degree of protection is IP00. Use explosion-proof oil, etc., as necessary.
(Note 3) Continuous rated torque is assured only when the required cooling capacity is satisfied.
(Note 4) There is no problem on the functionality or performance even if the molded parts include sink marks or voids, etc.

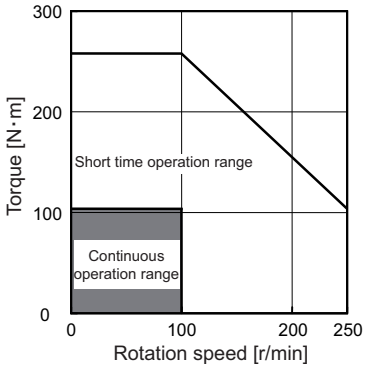
TM-RBS048G20



(Note 1) Deliverable rotors are magnetized. Please note the magnetic attraction.
(Note 2) Take special care for the magnet part not to hit against a thing (A crack or chip may occur).
(Note 3) Degree of protection is IP00. Use explosion-proof oil, etc., as necessary.
(Note 4) There is no problem on the functionality or performance even if the molded parts include sink marks or voids, etc.

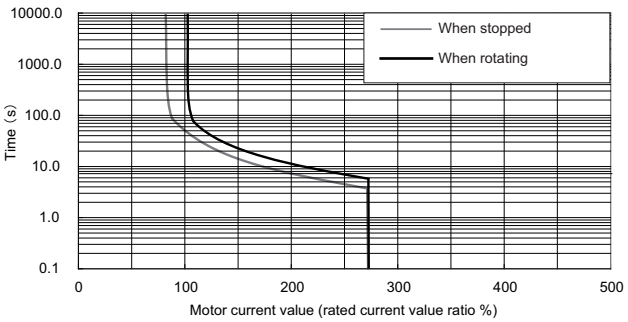
Rated torque	Rated rotation speed	Direct-drive motor type for primary side	
105N•m	100r/min	TM-RBP105G10	

Torque characteristics

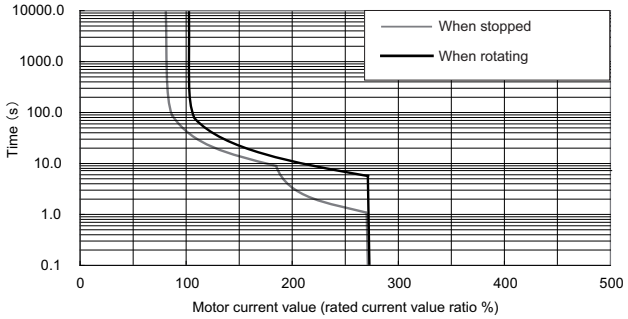


Servo overload protection characteristics

D series



SVJ3 series



Specifications

Item		Specifications
Compatible servo drive unit type (*1)	1-axis type	MDS-D-V1-160
	2-axis type	MDS-D-V2-16080 (L) MDS-D-V2-160160 (L,M)
	Regenerative resistor type	MDS-D-SVJ3-35/35NA
Continuous characteristics	Rated output [W]	1100
	Rated current [A]	21
	Rated torque [N•m]	105
Power facility capacity [kVA]		3.86
Rated rotation speed [r/min]		100
Maximum rotation speed [r/min]		250
Maximum current [A]		52
Maximum torque [N•m]		260
Power rate at continuous rated torque [kW/s]		279
Rotor inertia [kg•cm^2]		395
Degree of protection		IP00
Required cooling capacity [kW]		1.6
Cooling water volume		Min: 5 l/min Max: 6 l/min at 20°C
Dimensions [mm]	Primary side outer diameter	DIA 230
	Secondary side inner diameter	DIA 130
	Height	105
Mass [kg]	Primary side (coil)	13
	Secondary side (magnet)	7
Heat-resistant class		155(F)

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

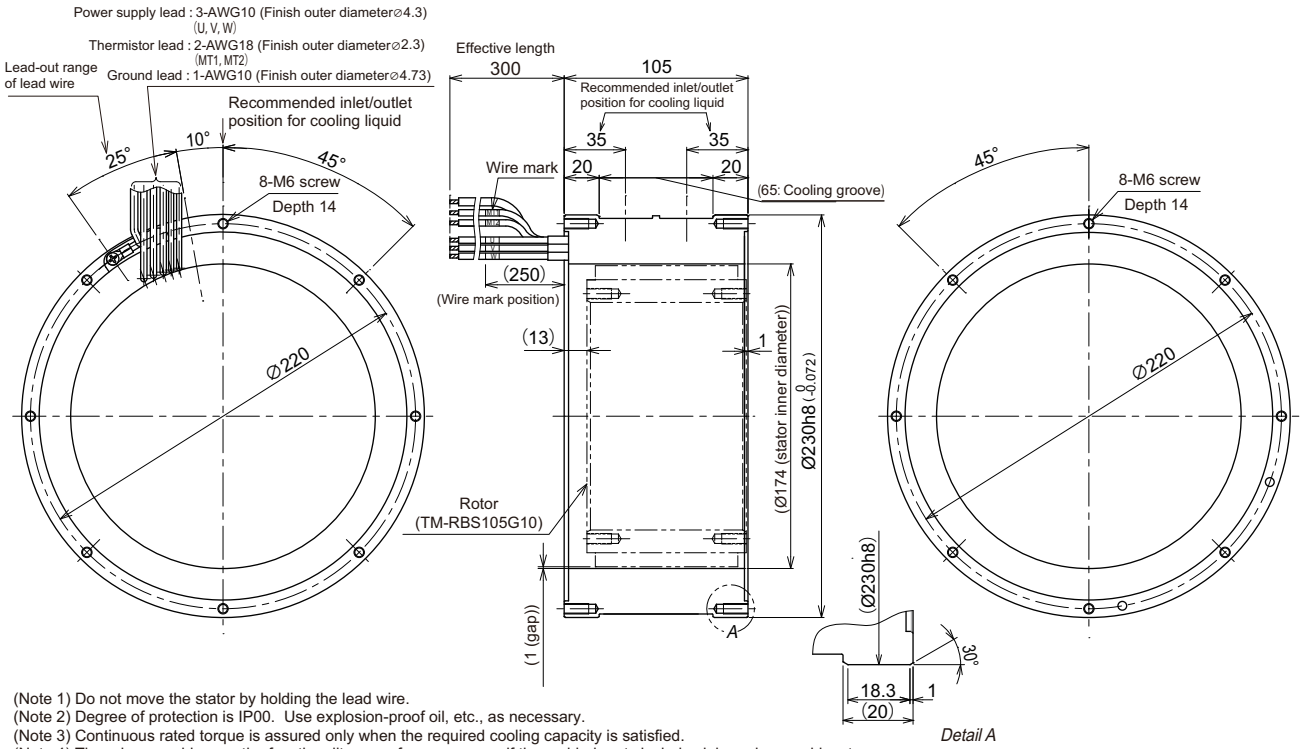
(*2) The above characteristics values are representative values. The maximum current and maximum torque are the values when combined with the drive unit.

Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C (with no freezing) Storage: -15°C to +70°C (with no freezing)
Ambient humidity	Operation:80% RH or less (with no dew condensation) Storage: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas or dust No oil or water splash
Vibration	5G or less
Altitude	1000m or less above sea level

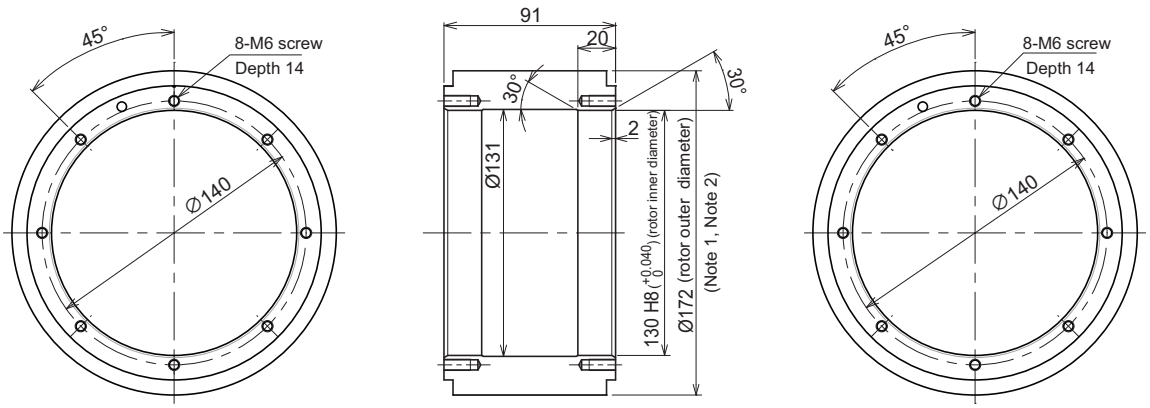
Outline dimension drawings [Unit : mm]

TM-RBP105G10



(Note 1) Do not move the stator by holding the lead wire.
(Note 2) Degree of protection is IP00. Use explosion-proof oil, etc., as necessary.
(Note 3) Continuous rated torque is assured only when the required cooling capacity is satisfied.
(Note 4) There is no problem on the functionality or performance even if the molded parts include sink marks or voids, etc.

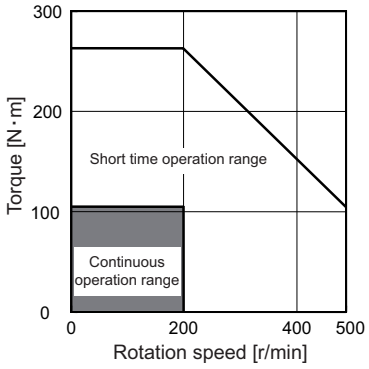
TM-RBS105G10



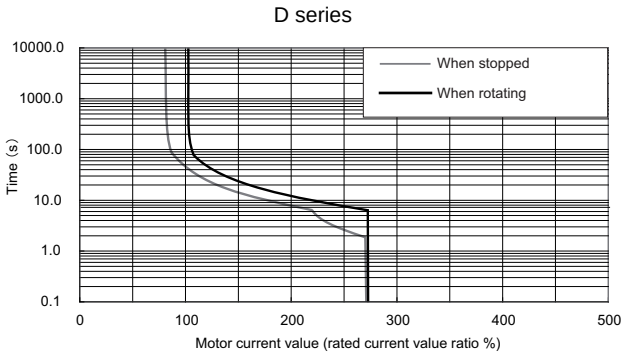
(Note 1) Deliverable rotors are magnetized. Please note the magnetic attraction.
(Note 2) Take special care for the magnet part not to hit against a thing (A crack or chip may occur).
(Note 3) Degree of protection is IP00. Use explosion-proof oil, etc., as necessary.
(Note 4) There is no problem on the functionality or performance even if the molded parts include sink marks or voids, etc.

Rated torque	Rated rotation speed	Direct-drive motor type for primary side	
105N•m	200r/min	TM-RBP105G20	

Torque characteristics



Servo overload protection characteristics



Specifications

Item		Specifications
Compatible servo drive unit type (*1)	1-axis type	MDS-D-V1-160
	2-axis type	MDS-D-V2-16080 (L) MDS-D-V2-160160 (L,M)
	Regenerative resistor type	-
Continuous characteristics	Rated output [W]	2199
	Rated current [A]	25
	Rated torque [N•m]	105
Power facility capacity [kVA]		5.00
Rated rotation speed [r/min]		200
Maximum rotation speed [r/min]		500
Maximum current [A]		63
Maximum torque [N•m]		260
Power rate at continuous rated torque [kW/s]		279
Rotor inertia [kg•cm^2]		395
Degree of protection		IP00
Required cooling capacity [kW]		1.3
Cooling water volume		Min: 5 l/min Max: 6 l/min at 20°C
Dimensions [mm]	Primary side outer diameter	DIA 230
	Secondary side inner diameter	DIA 130
	Height	105
Mass [kg]	Primary side (coil)	13
	Secondary side (magnet)	7
Heat-resistant class		155(F)

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

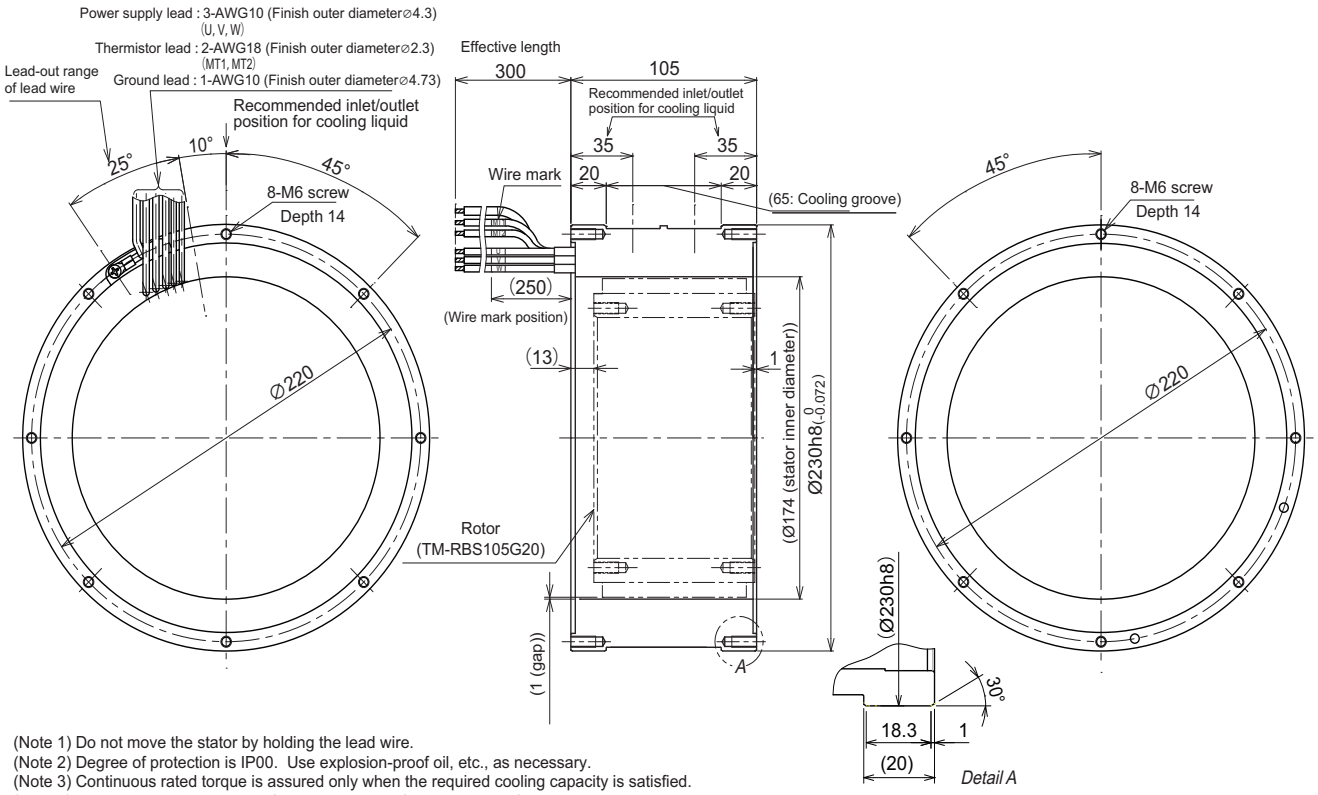
(*2) The above characteristics values are representative values. The maximum current and maximum torque are the values when combined with the drive unit.

Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C (with no freezing) Storage: -15°C to +70°C (with no freezing)
Ambient humidity	Operation:80% RH or less (with no dew condensation) Storage: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas or dust No oil or water splash
Vibration	5G or less
Altitude	1000m or less above sea level

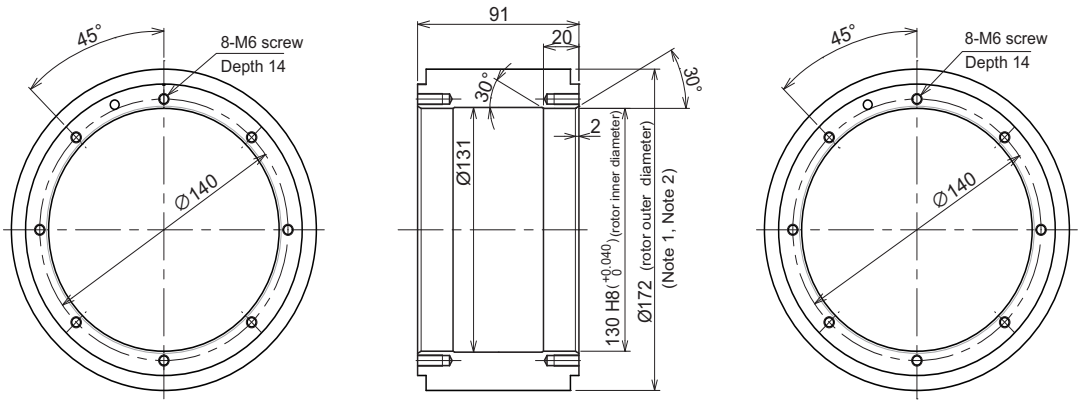
Outline dimension drawings [Unit : mm]

TM-RBP105G20



(Note 1) Do not move the stator by holding the lead wire.
(Note 2) Degree of protection is IP00. Use explosion-proof oil, etc., as necessary.
(Note 3) Continuous rated torque is assured only when the required cooling capacity is satisfied.
(Note 4) There is no problem on the functionality or performance even if the molded parts include sink marks or voids, etc.

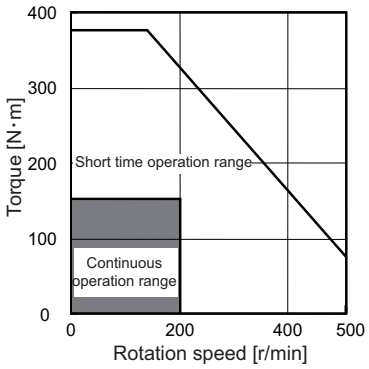
TM-RBS105G20



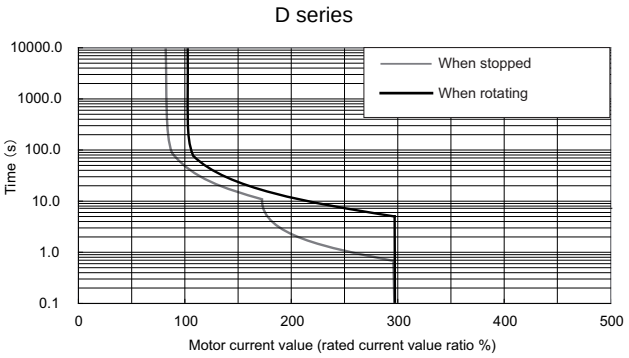
(Note 1) Deliverable rotors are magnetized. Please note the magnetic attraction.
(Note 2) Take special care for the magnet part not to hit against a thing (A crack or chip may occur).
(Note 3) Degree of protection is IP00. Use explosion-proof oil, etc., as necessary.
(Note 4) There is no problem on the functionality or performance even if the molded parts include sink marks or voids, etc.

Rated torque	Rated rotation speed	Direct-drive motor type for primary side	
150N•m	200r/min	TM-RBP150G20	

Torque characteristics



Servo overload protection characteristics



Specifications

Item		Specifications
Compatible servo drive unit type (*1)	1-axis type	MDS-D-V1-160
	2-axis type	MDS-D-V2-160160 (L,M)
	Regenerative resistor type	-
Continuous characteristics	Rated output [W]	3141
	Rated current [A]	33
	Rated torque [N•m]	150
Power facility capacity [kVA]		7.20
Rated rotation speed [r/min]		200
Maximum rotation speed [r/min]		500
Maximum current [A]		83
Maximum torque [N•m]		375
Power rate at continuous rated torque [kW/s]		441
Rotor inertia [kg•cm^2]		510
Degree of protection		IP00
Required cooling capacity [kW]		1.9
Cooling water volume		Min: 5 l/min Max: 6 l/min at 20°C
Dimensions [mm]	Primary side outer diameter	DIA 230
	Secondary side inner diameter	DIA 130
	Height	130
Mass [kg]	Primary side (coil)	16
	Secondary side (magnet)	9
Heat-resistant class		155(F)

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

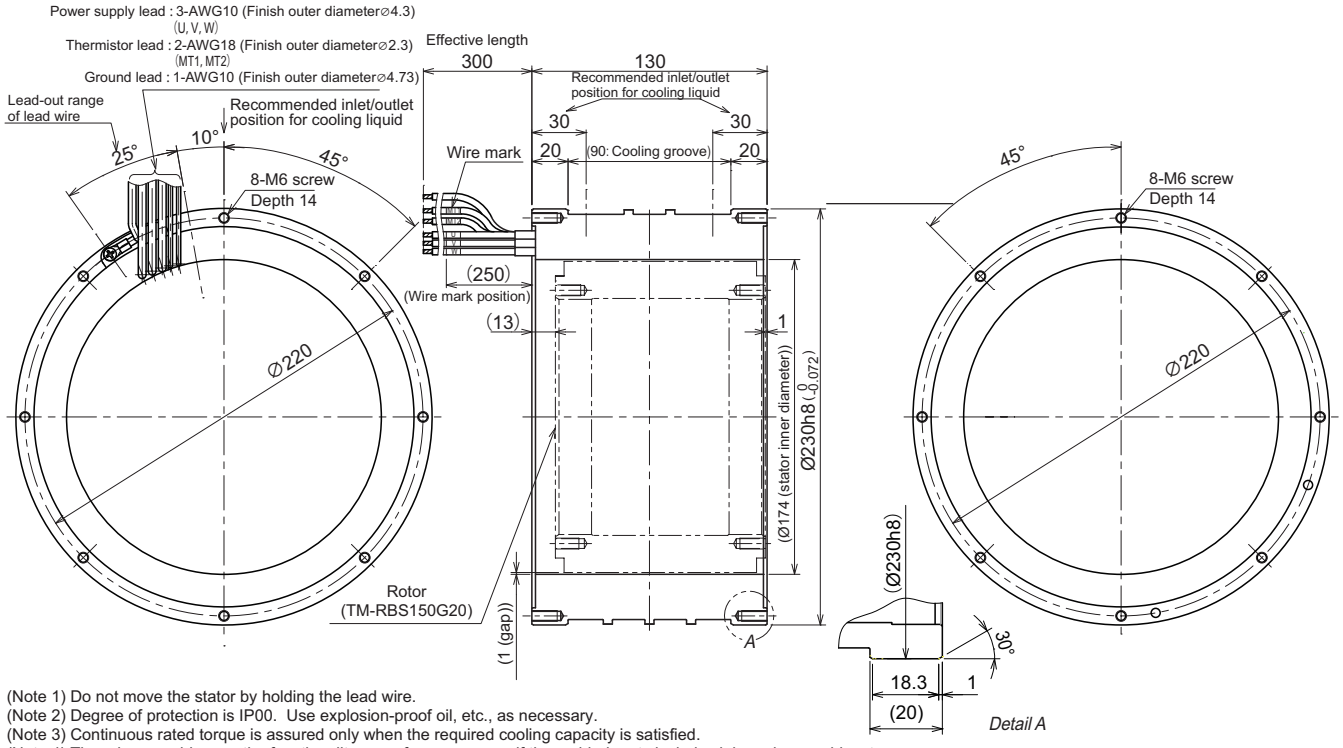
(*2) The above characteristics values are representative values. The maximum current and maximum torque are the values when combined with the drive unit.

Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C (with no freezing) Storage: -15°C to +70°C (with no freezing)
Ambient humidity	Operation:80% RH or less (with no dew condensation) Storage: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas or dust No oil or water splash
Vibration	5G or less
Altitude	1000m or less above sea level

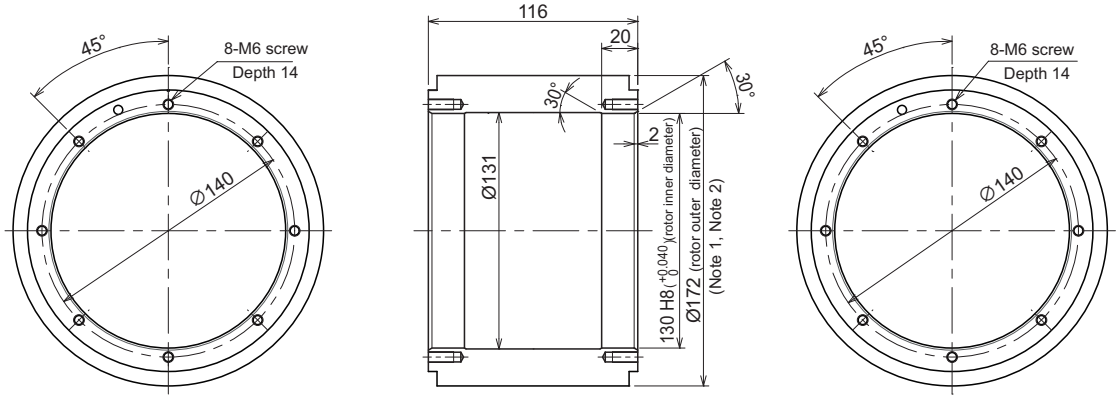
Outline dimension drawings [Unit : mm]

TM-RBP150G20



(Note 1) Do not move the stator by holding the lead wire.
(Note 2) Degree of protection is IP00. Use explosion-proof oil, etc., as necessary.
(Note 3) Continuous rated torque is assured only when the required cooling capacity is satisfied.
(Note 4) There is no problem on the functionality or performance even if the molded parts include sink marks or voids, etc.

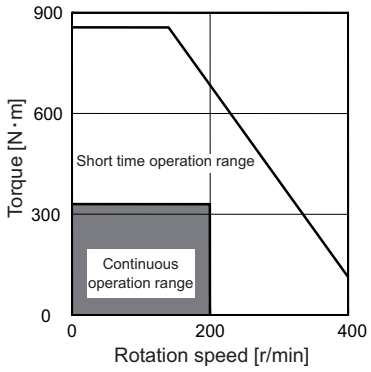
TM-RBS150G20



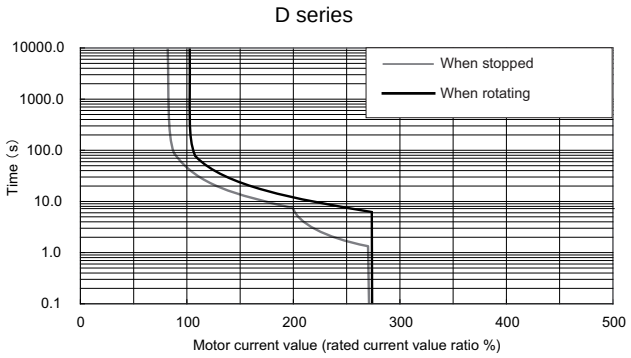
(Note 1) Deliverable rotors are magnetized. Please note the magnetic attraction.
(Note 2) Take special care for the magnet part not to hit against a thing (A crack or chip may occur).
(Note 3) Degree of protection is IP00. Use explosion-proof oil, etc., as necessary.
(Note 4) There is no problem on the functionality or performance even if the molded parts include sink marks or voids, etc.

Rated torque	Rated rotation speed	Direct-drive motor type for primary side	
340N•m	200r/min	TM-RBP340J20	

Torque characteristics



Servo overload protection characteristics



Specifications

Item		Specifications
Compatible servo drive unit type (*1)	1-axis type	MDS-D-V1-320
	2-axis type	-
	Regenerative resistor type	-
Continuous characteristics	Rated output [W]	7120
	Rated current [A]	54
	Rated torque [N•m]	340
Power facility capacity [kVA]		14.03
Rated rotation speed [r/min]		200
Maximum rotation speed [r/min]		400
Maximum current [A]		135
Maximum torque [N•m]		850
Power rate at continuous rated torque [kW/s]		416
Rotor inertia [kg•cm^2]		2778
Degree of protection		IP00
Required cooling capacity [kW]		2.7
Cooling water volume		Min: 5 l/min Max: 6 l/min at 20°C
Dimensions [mm]	Primary side outer diameter	DIA 330
	Secondary side inner diameter	DIA 205
	Height	154
Mass [kg]	Primary side (coil)	33
	Secondary side (magnet)	20
Heat-resistant class		155(F)

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

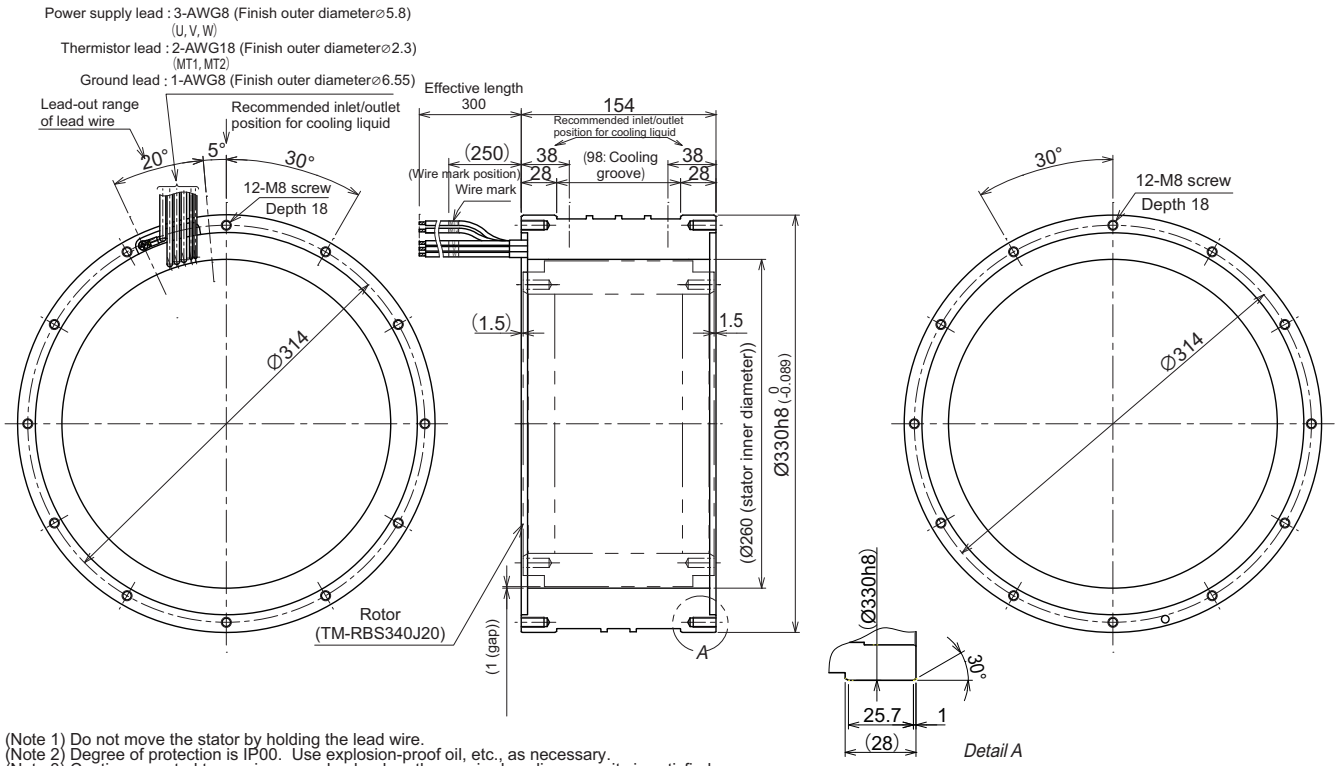
(*2) The above characteristics values are representative values. The maximum current and maximum torque are the values when combined with the drive unit.

Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C (with no freezing) Storage: -15°C to +70°C (with no freezing)
Ambient humidity	Operation:80% RH or less (with no dew condensation) Storage: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas or dust No oil or water splash
Vibration	2.5G or less
Altitude	1000m or less above sea level

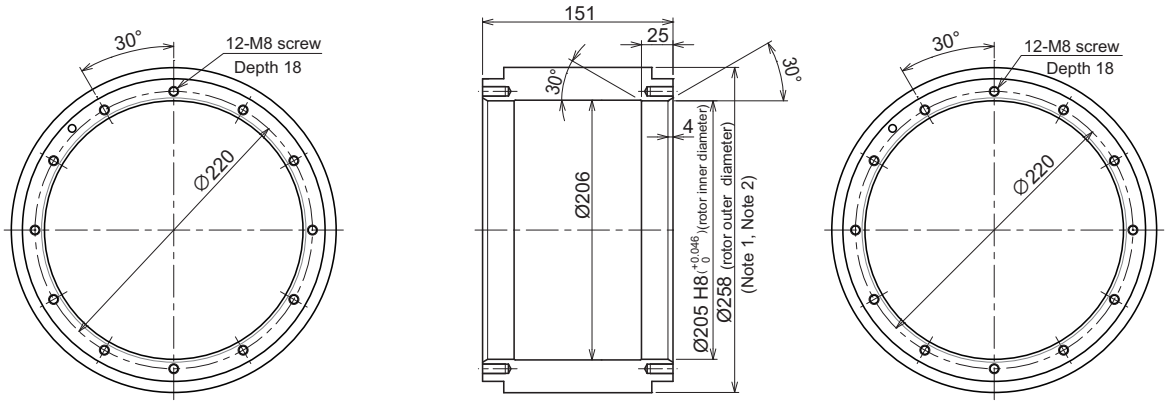
Outline dimension drawings [Unit : mm]

TM-RBP340J20



(Note 1) Do not move the stator by holding the lead wire.
(Note 2) Degree of protection is IP00. Use explosion-proof oil, etc., as necessary.
(Note 3) Continuous rated torque is assured only when the required cooling capacity is satisfied.
(Note 4) There is no problem on the functionality or performance even if the molded parts include sink marks or voids, etc.

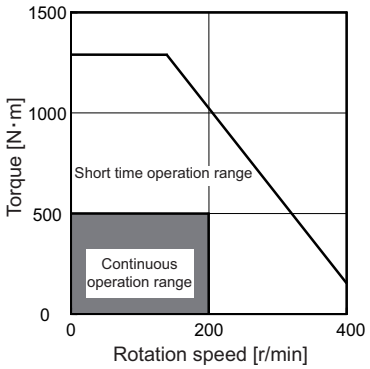
TM-RBS340J20



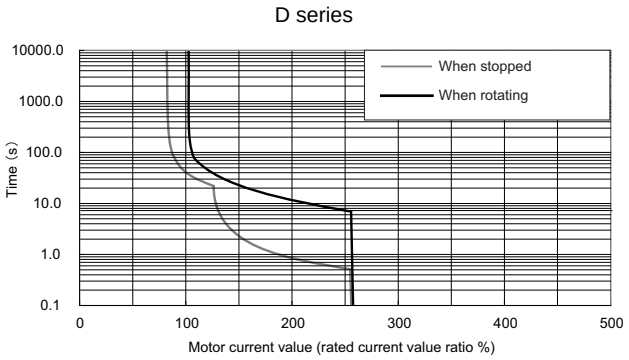
(Note 1) Deliverable rotors are magnetized. Please note the magnetic attraction.
(Note 2) Take special care for the magnet part not to hit against a thing (A crack or chip may occur).
(Note 3) Degree of protection is IP00. Use explosion-proof oil, etc., as necessary.
(Note 4) There is no problem on the functionality or performance even if the molded parts include sink marks or voids, etc.

Rated torque	Rated rotation speed	Direct-drive motor type for primary side	
500N•m	200r/min	TM-RBP500J20	

Torque characteristics



Servo overload protection characteristics



Specifications

Item		Specifications
Compatible servo drive unit type (*1)	1-axis type	MDS-D-V1-320W
	2-axis type	-
	Regenerative resistor type	-
Continuous characteristics	Rated output [W]	10471
	Rated current [A]	82
	Rated torque [N•m]	500
Power facility capacity [kVA]		20.82
Rated rotation speed [r/min]		200
Maximum rotation speed [r/min]		400
Maximum current [A]		210
Maximum torque [N•m]		1280
Power rate at continuous rated torque [kW/s]		707
Rotor inertia [kg•cm^2]		3538
Degree of protection		IP00
Required cooling capacity [kW]		4.1
Cooling water volume		Min: 5 l/min Max: 6 l/min at 20°C
Dimensions [mm]	Primary side outer diameter	DIA 330
	Secondary side inner diameter	DIA 205
	Height	191
Mass [kg]	Primary side (coil)	41
	Secondary side (magnet)	26
Heat-resistant class		155(F)

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

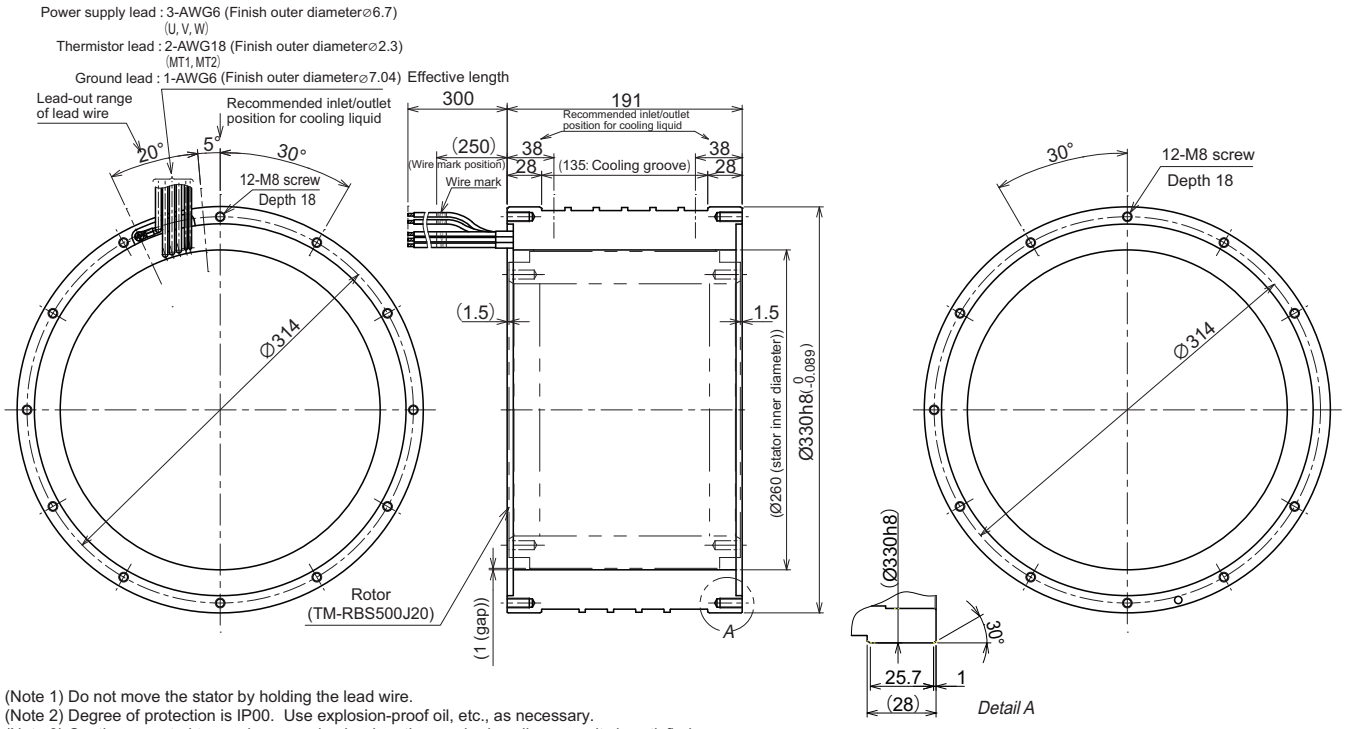
(*2) The above characteristics values are representative values. The maximum current and maximum torque are the values when combined with the drive unit.

Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C (with no freezing) Storage: -15°C to +70°C (with no freezing)
Ambient humidity	Operation:80% RH or less (with no dew condensation) Storage: 90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas or dust No oil or water splash
Vibration	2.5G or less
Altitude	1000m or less above sea level

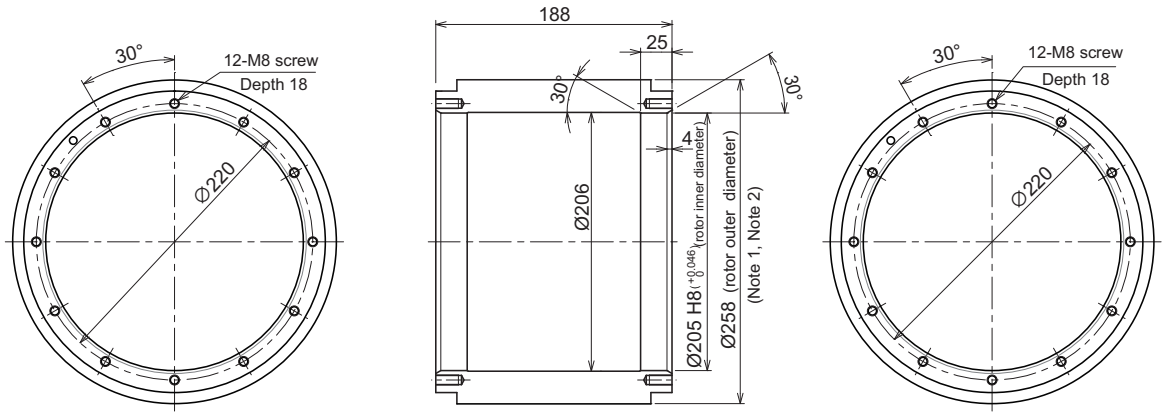
Outline dimension drawings [Unit : mm]

TM-RBP500J20



(Note 1) Do not move the stator by holding the lead wire.
(Note 2) Degree of protection is IP00. Use explosion-proof oil, etc., as necessary.
(Note 3) Continuous rated torque is assured only when the required cooling capacity is satisfied.
(Note 4) There is no problem on the functionality or performance even if the molded parts include sink marks or voids, etc.

TM-RBS500J20

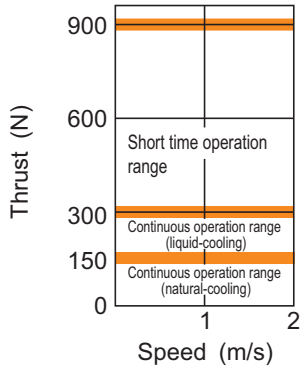


(Note 1) Deliverable rotors are magnetized. Please note the magnetic attraction.
(Note 2) Take special care for the magnet part not to hit against a thing (A crack or chip may occur).
(Note 3) Degree of protection is IP00. Use explosion-proof oil, etc., as necessary.
(Note 4) There is no problem on the functionality or performance even if the molded parts include sink marks or voids, etc.

Linear motor

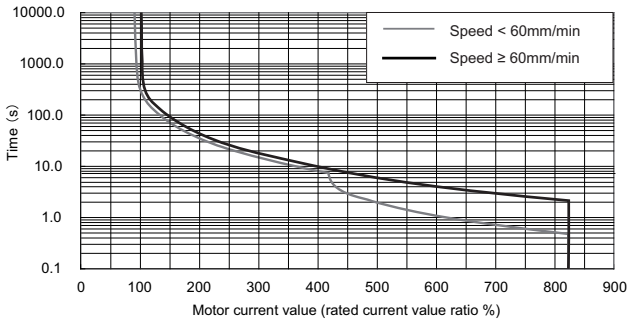
Thrust		Linear servo motor type		Explanation of type	
Rated (natural-cooling)	150N	Primary side (coil)	LM-FP2A-03M -1WW0		
Rated (liquid-cooling)	300N	Secondary side (magnet)	(1) LM-FS20 -□-1WW0	(1) Length [mm]	384
Maximum	900N				480
					576

Thrust Characteristics

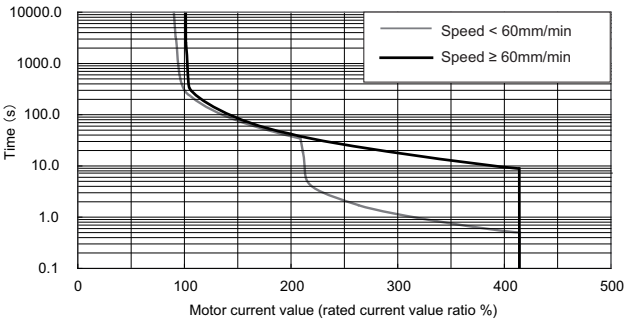


Servo overload protection characteristics

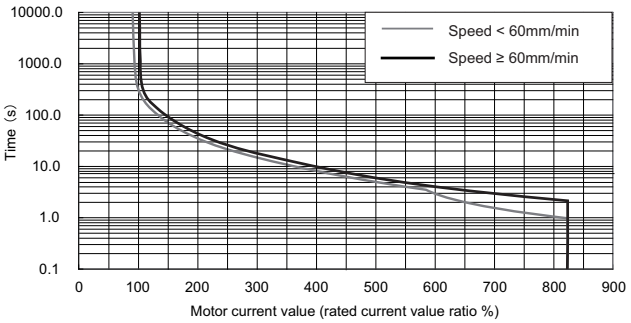
D series (For natural-cooling)



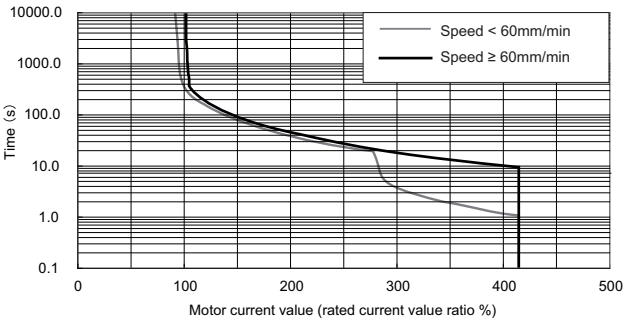
D series (For liquid-cooling)



SVJ3 series (For natural-cooling)



SVJ3 series (For liquid-cooling)



Specifications

Item		Specifications	
		Standard	Drive with one unit and two motors
Compatible drive unit (*1)	1-axis type	MDS-D-V1-40	MDS-D-V1-80
	2-axis type	MDS-D-V2-4020 (L) MDS-D-V2-4040 MDS-D-V2-8040 (M)	MDS-D-V2-8040 (L) MDS-D-V2-8080 MDS-D-V2-16080 (M)
	3-axis type	MDS-DM-V3-404040	-
	Regenerative resistor type	MDS-D-SVJ3-10/10NA	MDS-D-SVJ3-20/20NA
Power facility capacity [kVA]		2.0	4.0
Current	Rated (natural-cooling) [Arms]	3.5	6.9
	Rated (liquid-cooling) [Arms]	6.9	13.8
	Maximum [Arms]	26.1	52.2
Cooling method		Natural-cooling, liquid-cooling	
Thrust	Rated (natural-cooling) [N]	150	300
	Rated (liquid-cooling) [N]	300	600
	Maximum [N]	900	1800
Maximum speed [m/s] (*2)		2.0	
Magnetic attraction force [N]		2500	
Mass	Primary side [kg]	5	5×2
	Secondary side [kg]	5.8 (384mm) 7.1 (480mm) 9.0 (576mm)	
Recommended load mass ratio		15 times linear servo motor primary side mass maximum	
Structure		Open (Degree of protection IP00)	

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2) The above value may be limited by the maximum speed of the linear scale.

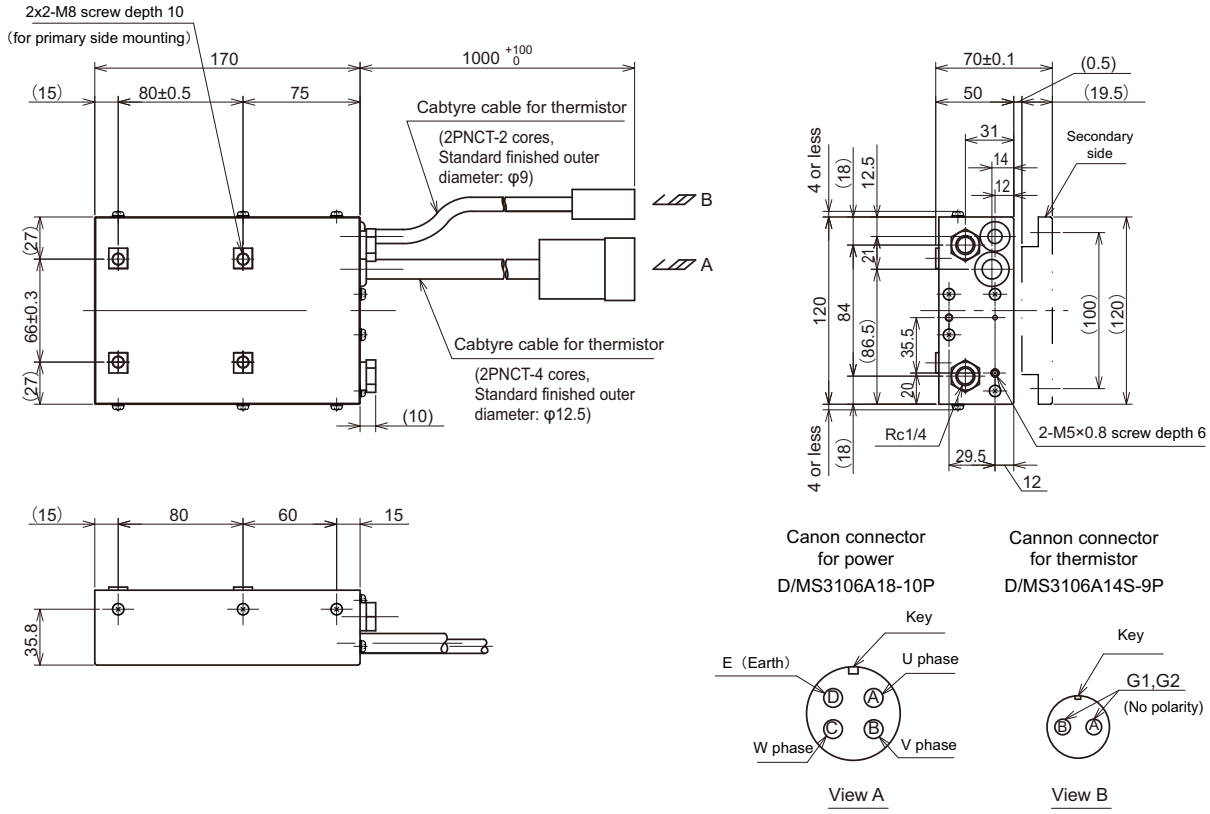
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C (with no freezing) Storage: -15°C to 55°C (with no freezing)
Ambient humidity	Operation: 80%RH or less (with no dew condensation) Storage: 90%RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, or dust
Vibration	49m/s ^{2} or less
Altitude	1000 meters or less above sea level

Outline dimension drawings [Unit : mm]

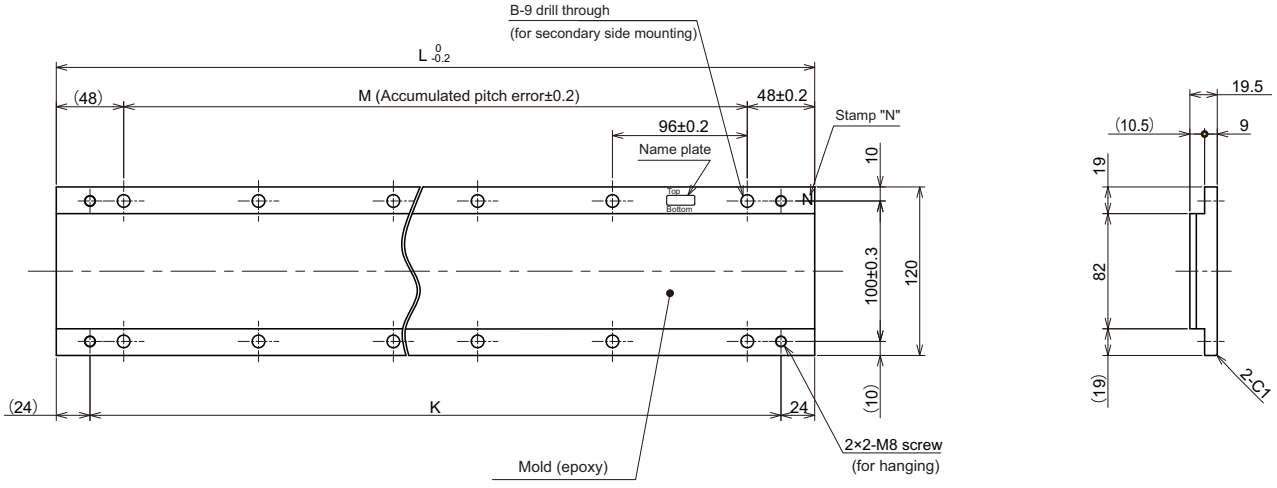
< Primary side >

LM-FP2A-03M-1WW0



< Secondary side >

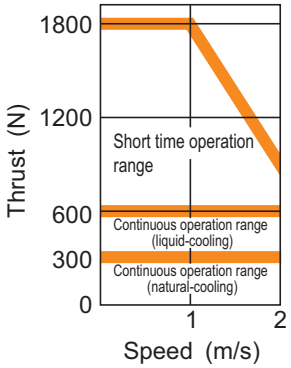
LM-FS20- □ -1WW0



Model	Variable dimensions			
	L	M	K	B
LM-FS20-384-1WW0	384	3X96(=288)	336	4×2
LM-FS20-480-1WW0	480	4X96(=384)	432	5×2
LM-FS20-576-1WW0	576	5X96(=480)	528	6×2

Thrust		Linear servo motor type		Explanation of type	
Rated (natural-cooling)	300N	Primary side (coil)	LM-FP2B-06M -1WW0		
Rated (liquid-cooling)	600N	Secondary side (magnet)	(1) LM-FS20 -□-1WW0	(1) Length [mm]	384
Maximum	1800N				480
					576

Thrust Characteristics



Specifications

Item		Specifications	
		Standard	Drive with one unit and two motors
Compatible drive unit (*1)	1-axis type	MDS-D-V1-40	MDS-D-V1-80
	2-axis type	MDS-D-V2-4020 (L) MDS-D-V2-4040 MDS-D-V2-8040 (M)	MDS-D-V2-8040 (L) MDS-D-V2-8080 MDS-D-V2-16080 (M)
	3-axis type	MDS-DM-V3-404040	-
	Regenerative resistor type	MDS-D-SVJ3-10/10NA	MDS-D-SVJ3-20/20NA
Power facility capacity [kVA]		3.5	7.0
Current	Rated (natural-cooling) [Arms]	3.9	7.8
	Rated (liquid-cooling) [Arms]	7.8	15.6
	Maximum [Arms]	28.1	56.2
Cooling method		Natural-cooling, liquid-cooling	
Thrust	Rated (natural-cooling) [N]	300	600
	Rated (liquid-cooling) [N]	600	1200
	Maximum [N]	1800	3600
Maximum speed [m/s] (*2)		2.0	
Magnetic attraction force [N]		4500	
Mass	Primary side [kg]	9	9×2
	Secondary side [kg]	5.8 (384mm) 7.1 (480mm) 9.0 (576mm)	
Recommended load mass ratio		15 times linear servo motor primary side mass maximum	
Structure		Open (Degree of protection IP00)	

(*1) Only the combination designated in this manual can be used for the motor and drive unit.
Always use the designated combination.

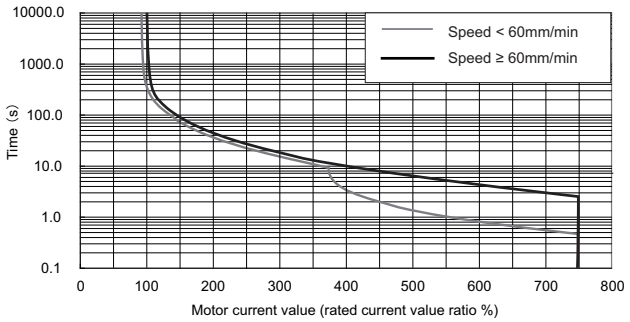
(*2) The above value may be limited by the maximum speed of the linear scale.

Environmental conditions

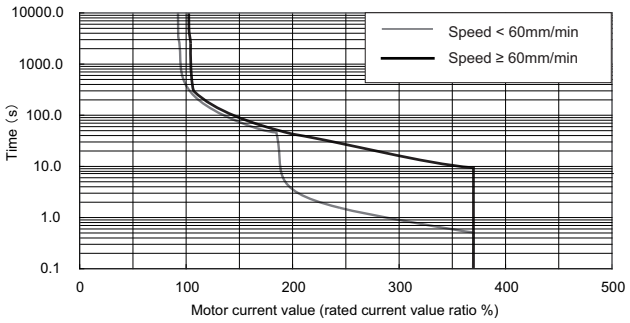
Item	Conditions
Ambient temperature	Operation: 0 to 40°C (with no freezing) Storage: -15°C to 55°C (with no freezing)
Ambient humidity	Operation: 80%RH or less (with no dew condensation) Storage: 90%RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, or dust
Vibration	49m/s ^{2} or less
Altitude	1000 meters or less above sea level

Servo overload protection characteristics

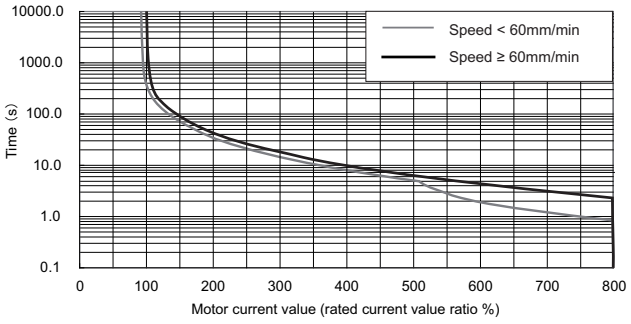
D series (For natural-cooling)



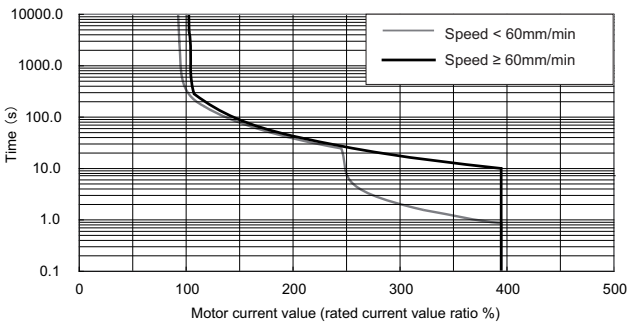
D series (For liquid-cooling)



SVJ3 series (For natural-cooling)



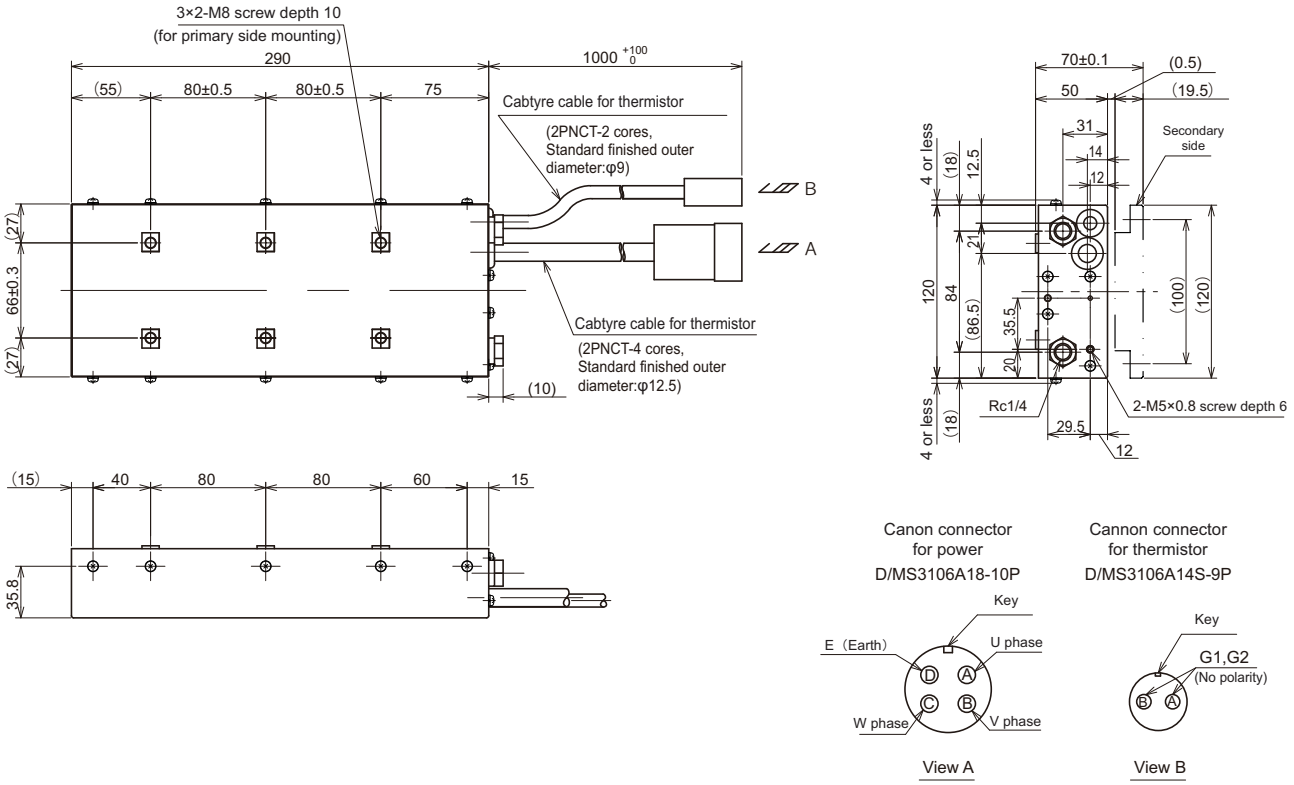
SVJ3 series (For liquid-cooling)



Outline dimension drawings [Unit : mm]

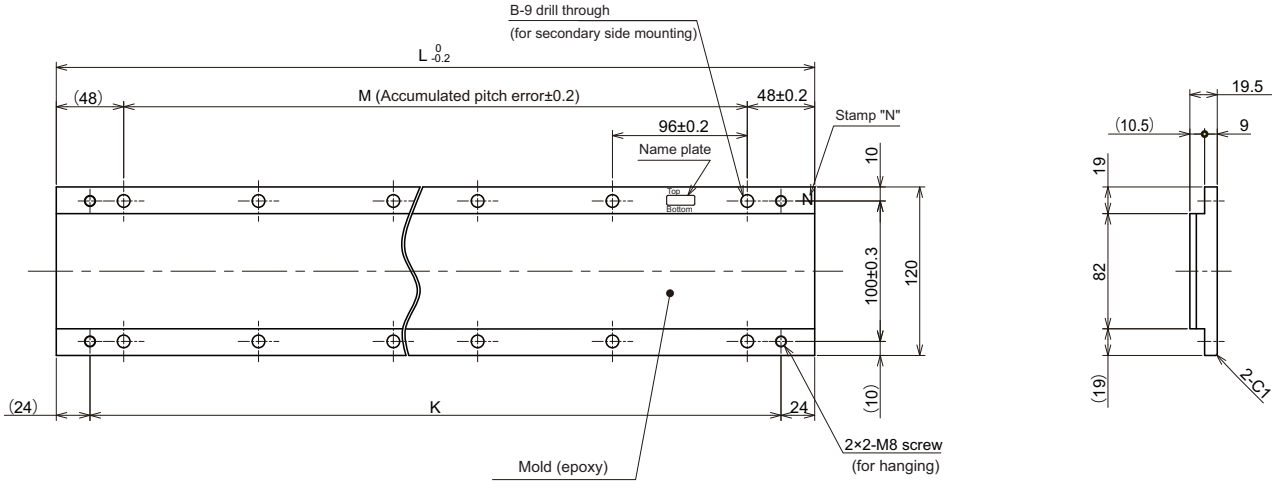
< Primary side >

LM-FP2B-06M-1WW0



< Secondary side >

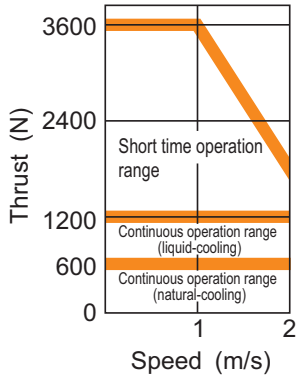
LM-FS20- □ -1WW0



Model	Variable dimensions			
	L	M	K	B
LM-FS20-384-1WW0	384	3X96(=288)	336	4×2
LM-FS20-480-1WW0	480	4X96(=384)	432	5×2
LM-FS20-576-1WW0	576	5X96(=480)	528	6×2

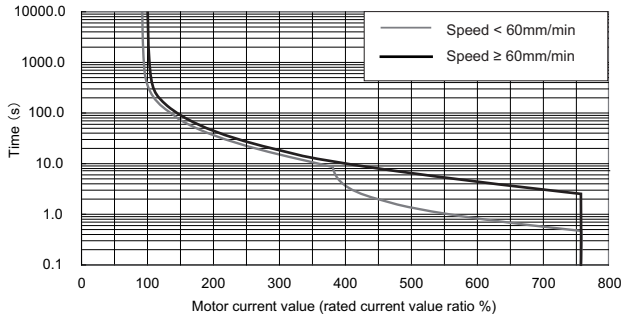
Thrust		Linear servo motor type		Explanation of type	
Rated (natural-cooling)	600N	Primary side (coil)	LM-FP2D-12M -1WW0		
Rated (liquid-cooling)	1200N	Secondary side (magnet)	(1) LM-FS20 -□-1WW0	(1) Length [mm]	384
Maximum	3600N				480
					576

Thrust Characteristics

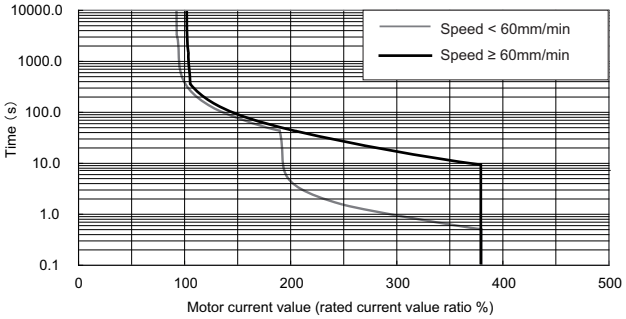


Servo overload protection characteristics

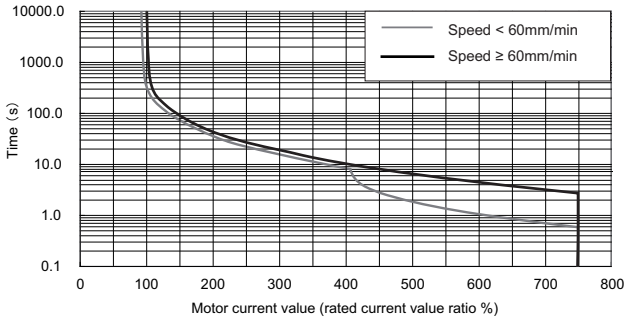
D series (For natural-cooling)



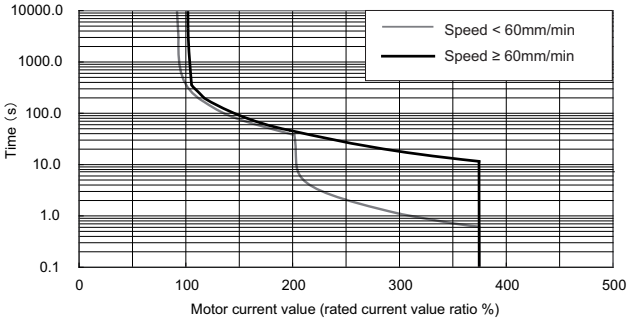
D series (For liquid-cooling)



SVJ3 series (For natural-cooling)



SVJ3 series (For liquid-cooling)



Specifications

Item		Specifications	
		Standard	Drive with one unit and two motors
Compatible drive unit (*1)	1-axis type	MDS-D-V1-80	MDS-D-V1-160
	2-axis type	MDS-D-V2-8040 (L) MDS-D-V2-8080 MDS-D-V2-16080 (M)	MDS-D-V2-16080 (L) MDS-D-V2-160160
	3-axis type	-	-
	Regenerative resistor type	MDS-D-SVJ3-20/20NA	-
Power facility capacity [kVA]		5.5	11.0
Current	Rated (natural-cooling) [Arms]	7.7	15.3
	Rated (liquid-cooling) [Arms]	15.3	30.5
	Maximum [Arms]	57.8	115.7
Cooling method		Natural-cooling, liquid-cooling	
Thrust	Rated (natural-cooling) [N]	600	1200
	Rated (liquid-cooling) [N]	1200	2400
	Maximum [N]	3600	7200
Maximum speed [m/s] (*2)		2.0	
Magnetic attraction force [N]		9000	
Mass	Primary side [kg]	18	18×2
	Secondary side [kg]	5.8 (384mm) 7.1 (480mm) 9.0 (576mm)	
Recommended load mass ratio		15 times linear servo motor primary side mass maximum	
Structure		Open (Degree of protection IP00)	

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2) The above value may be limited by the maximum speed of the linear scale.

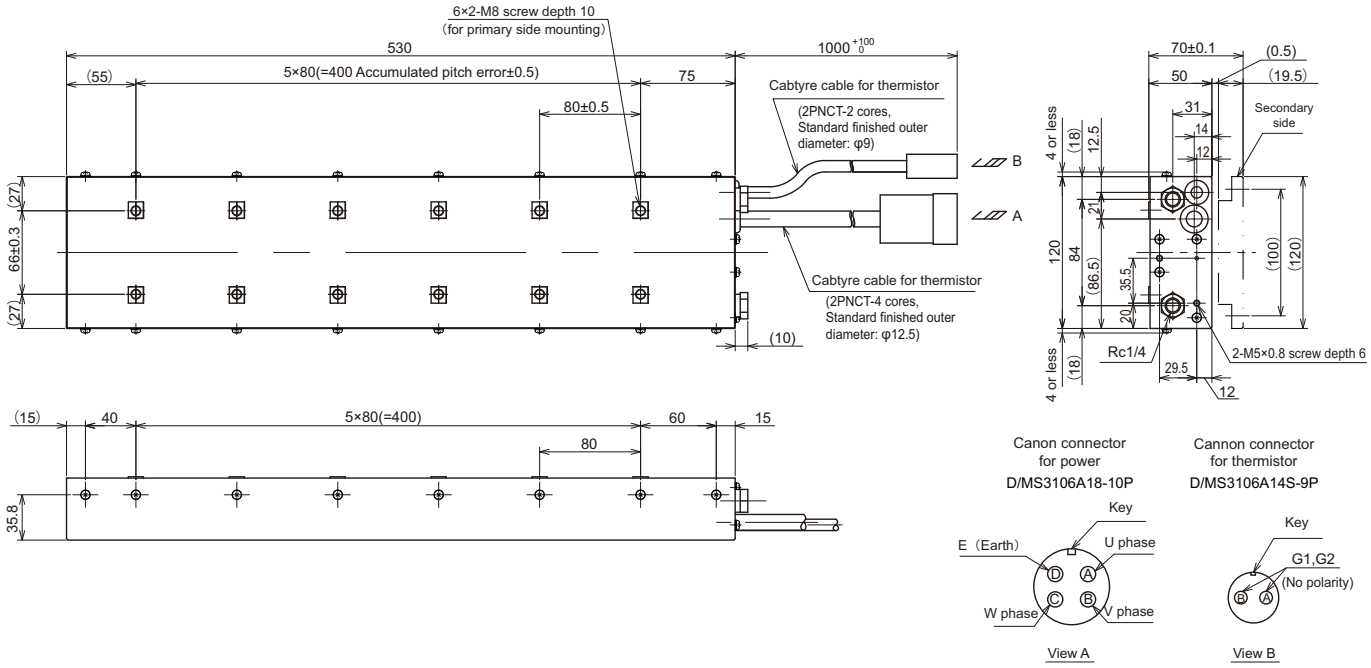
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C (with no freezing) Storage: -15°C to 55°C (with no freezing)
Ambient humidity	Operation: 80%RH or less (with no dew condensation) Storage: 90%RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, or dust
Vibration	49m/s ^{2} or less
Altitude	1000 meters or less above sea level

Outline dimension drawings [Unit : mm]

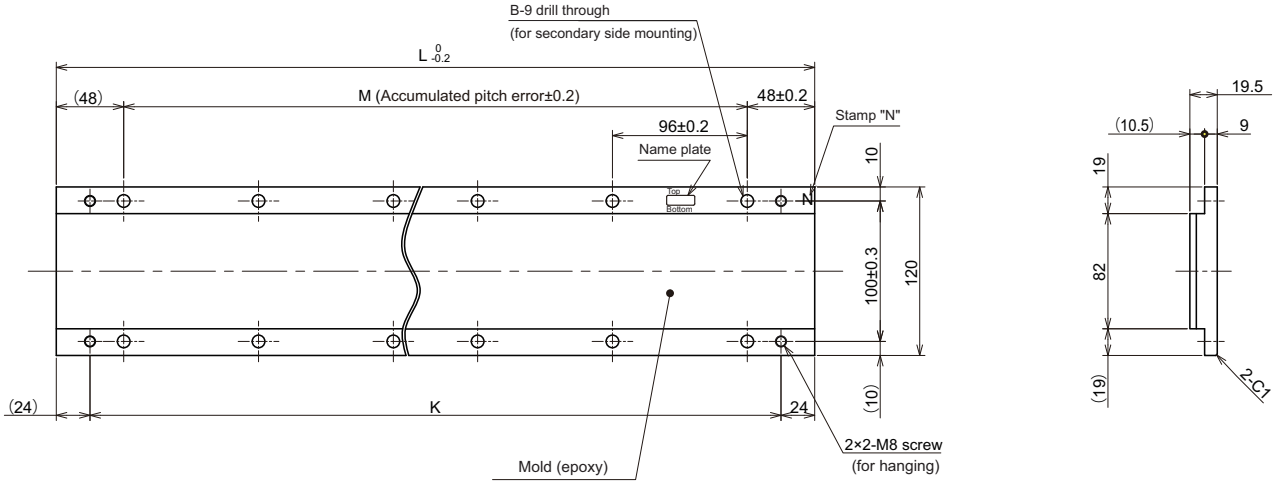
< Primary side >

LM-FP2D-12M-1WW0



< Secondary side >

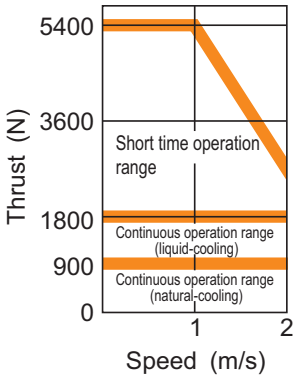
LM-FS20- □ -1WW0



Model	Variable dimensions			
	L	M	K	B
LM-FS20-384-1WW0	384	3X96(=288)	336	4×2
LM-FS20-480-1WW0	480	4X96(=384)	432	5×2
LM-FS20-576-1WW0	576	5X96(=480)	528	6×2

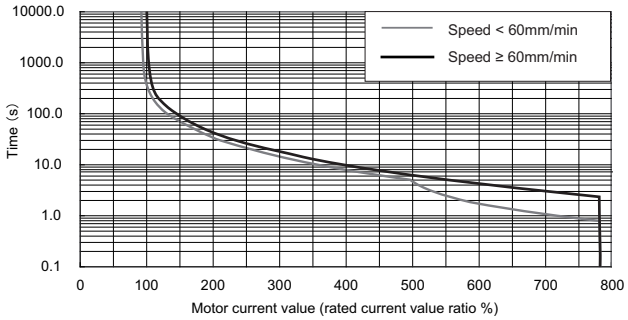
Thrust		Linear servo motor type		Explanation of type	
Rated (natural-cooling)	900N	Primary side (coil)	LM-FP2F-18M -1WW0		
Rated (liquid-cooling)	1800N	Secondary side (magnet)	(1) LM-FS20 -□-1WW0	(1) Length [mm]	384
Maximum	5400N				480
					576

Thrust Characteristics

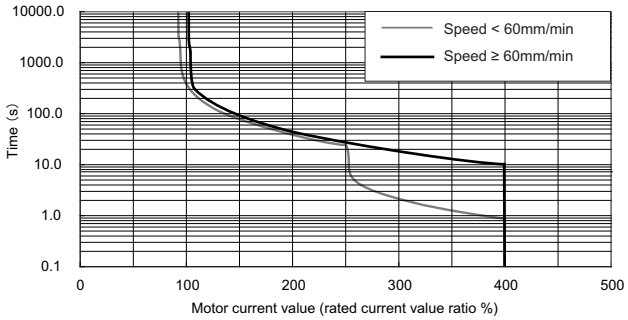


Servo overload protection characteristics

D series (For natural-cooling)



D series (For liquid-cooling)



Specifications

Item		Specifications	
		Standard	Drive with one unit and two motors
Compatible drive unit (*1)	1-axis type	MDS-D-V1-160	MDS-D-V1-320
	2-axis type	MDS-D-V2-16080 (L) MDS-D-V2-160160	-
	3-axis type	-	-
	Regenerative resistor type	-	-
Power facility capacity [kVA]		10	20.0
Current	Rated (natural-cooling) [Arms]	11.9	23.8
	Rated (liquid-cooling) [Arms]	23.2	46.4
	Maximum [Arms]	84.7	169.4
Cooling method		Natural-cooling, liquid-cooling	
Thrust	Rated (natural-cooling) [N]	900	1800
	Rated (liquid-cooling) [N]	1800	3600
	Maximum [N]	5400	10800
Maximum speed [m/s] (*2)		2.0	
Magnetic attraction force [N]		13500	
Mass	Primary side [kg]	27	27×2
	Secondary side [kg]	5.8 (384mm) 7.1 (480mm) 9.0 (576mm)	
Recommended load mass ratio		15 times linear servo motor primary side mass maximum	
Structure		Open (Degree of protection IP00)	

(*1) Only the combination designated in this manual can be used for the motor and drive unit.
Always use the designated combination.

(*2) The above value may be limited by the maximum speed of the linear scale.

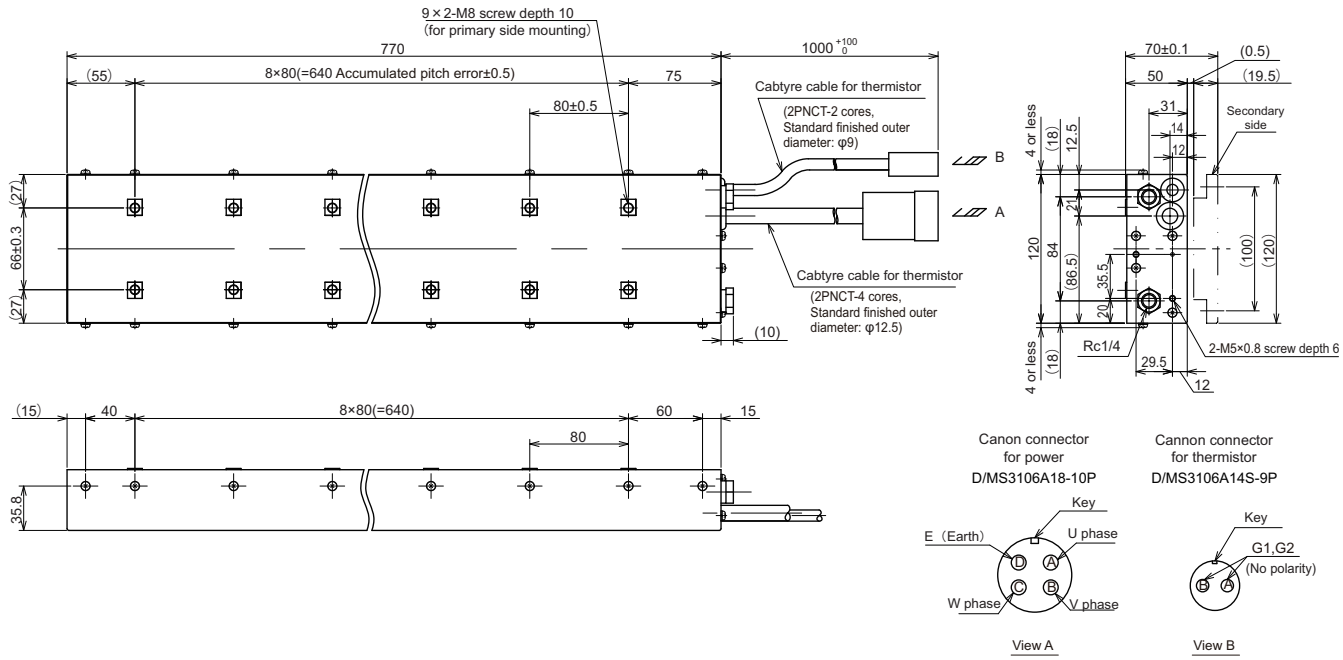
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C (with no freezing) Storage: -15°C to 55°C (with no freezing)
Ambient humidity	Operation: 80%RH or less (with no dew condensation) Storage: 90%RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, or dust
Vibration	49m/s ^{2} or less
Altitude	1000 meters or less above sea level

Outline dimension drawings [Unit : mm]

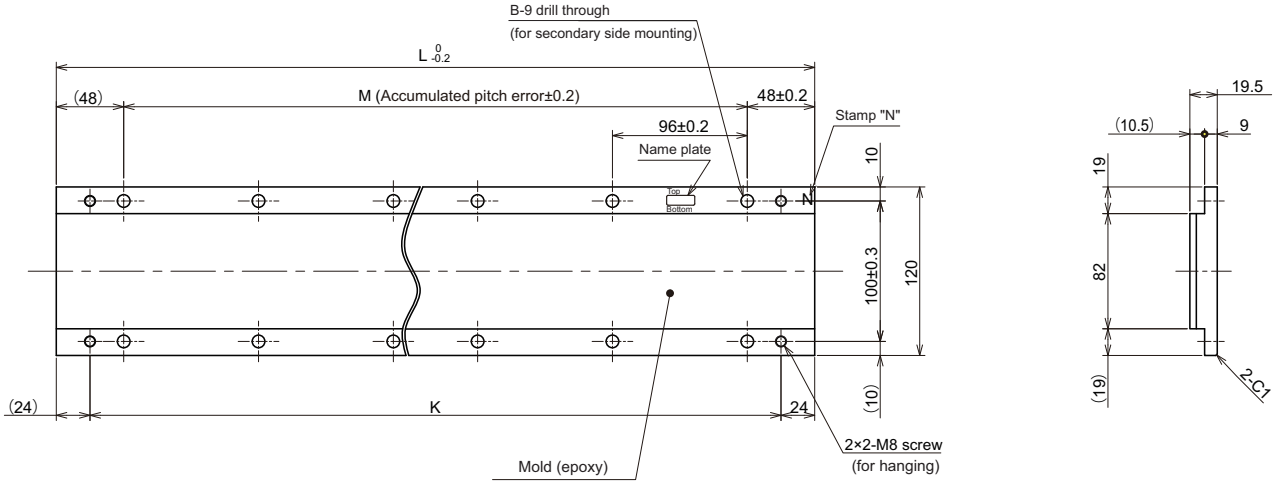
< Primary side >

LM-FP2F-18M-1WW0



< Secondary side >

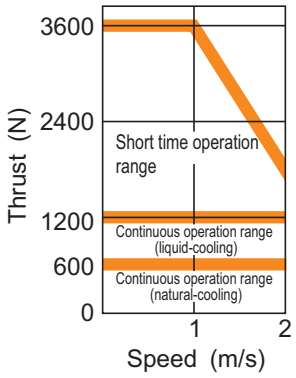
LM-FS20- □ -1WW0



Model	Variable dimensions			
	L	M	K	B
LM-FS20-384-1WW0	384	3X96(=288)	336	4×2
LM-FS20-480-1WW0	480	4X96(=384)	432	5×2
LM-FS20-576-1WW0	576	5X96(=480)	528	6×2

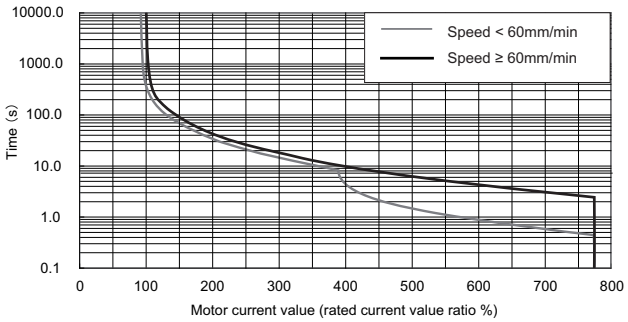
Thrust		Linear servo motor type		Explanation of type	
Rated (natural-cooling)	600N	Primary side (coil)	LM-FP4B-12M -1WW0		
Rated (liquid-cooling)	1200N	Secondary side (magnet)	(1) LM-FS40 -□-1WW0	(1) Length [mm]	480
Maximum	3600N				576

Thrust Characteristics

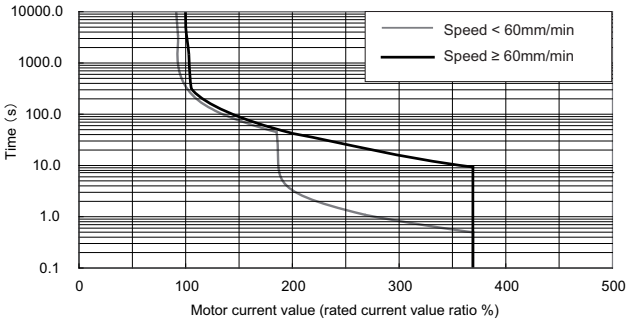


Servo overload protection characteristics

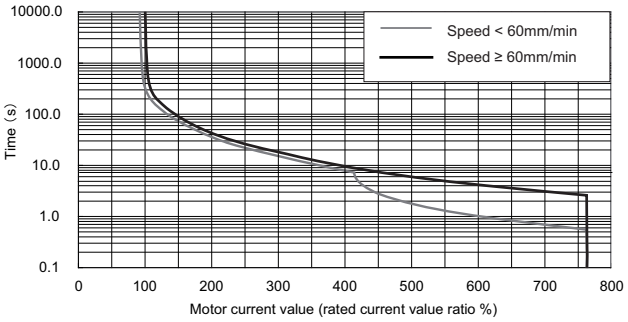
D series (For natural-cooling)



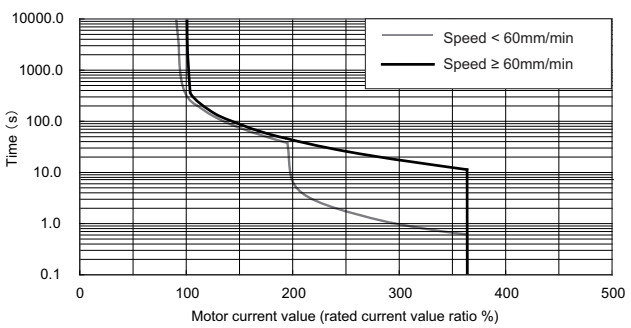
D series (For liquid-cooling)



SVJ3 series (For natural-cooling)



SVJ3 series (For liquid-cooling)



Specifications

Item		Specifications	
		Standard	Drive with one unit and two motors
Compatible drive unit (*1)	1-axis type	MDS-D-V1-80	MDS-D-V1-160
	2-axis type	MDS-D-V2-8040 (L) MDS-D-V2-8080 MDS-D-V2-16080 (M)	MDS-D-V2-16080 (L) MDS-D-V2-160160
	3-axis type	-	-
	Regenerative resistor type	MDS-D-SVJ3-20/20NA	-
Power facility capacity [kVA]		7.5	15.0
Current	Rated (natural-cooling) [Arms]	7.5	15.1
	Rated (liquid-cooling) [Arms]	15.7	31.4
	Maximum [Arms]	55.7	111.4
Cooling method		Natural-cooling, liquid-cooling	
Thrust	Rated (natural-cooling) [N]	600	1200
	Rated (liquid-cooling) [N]	1200	2400
	Maximum [N]	3600	7200
Maximum speed [m/s] (*2)		2.0	
Magnetic attraction force [N]		9000	
Mass	Primary side [kg]	14	14×2
	Secondary side [kg]	13.5 (480mm) 16.0 (576mm)	
Recommended load mass ratio		15 times linear servo motor primary side mass maximum	
Structure		Open (Degree of protection IP00)	

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2) The above value may be limited by the maximum speed of the linear scale.

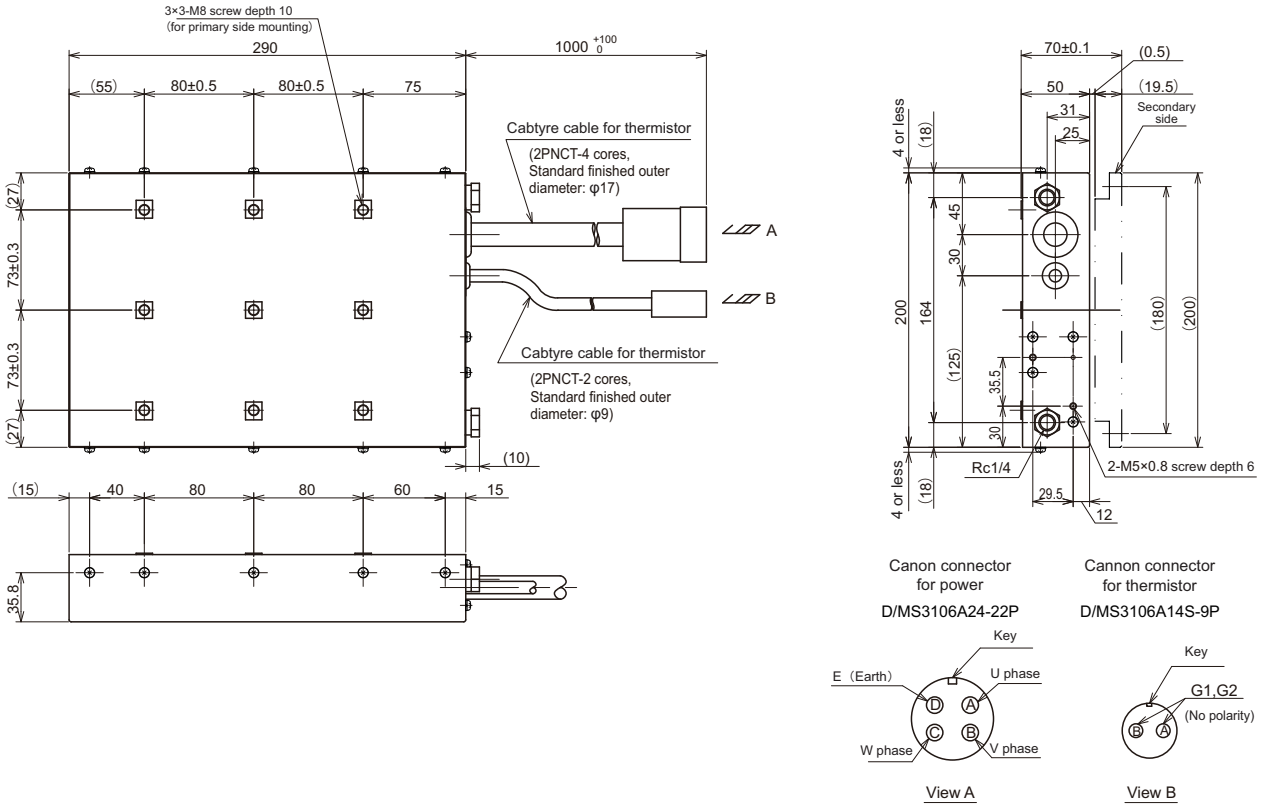
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C (with no freezing) Storage: -15°C to 55°C (with no freezing)
Ambient humidity	Operation: 80%RH or less (with no dew condensation) Storage: 90%RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, or dust
Vibration	49m/s ^{2} or less
Altitude	1000 meters or less above sea level

Outline dimension drawings [Unit : mm]

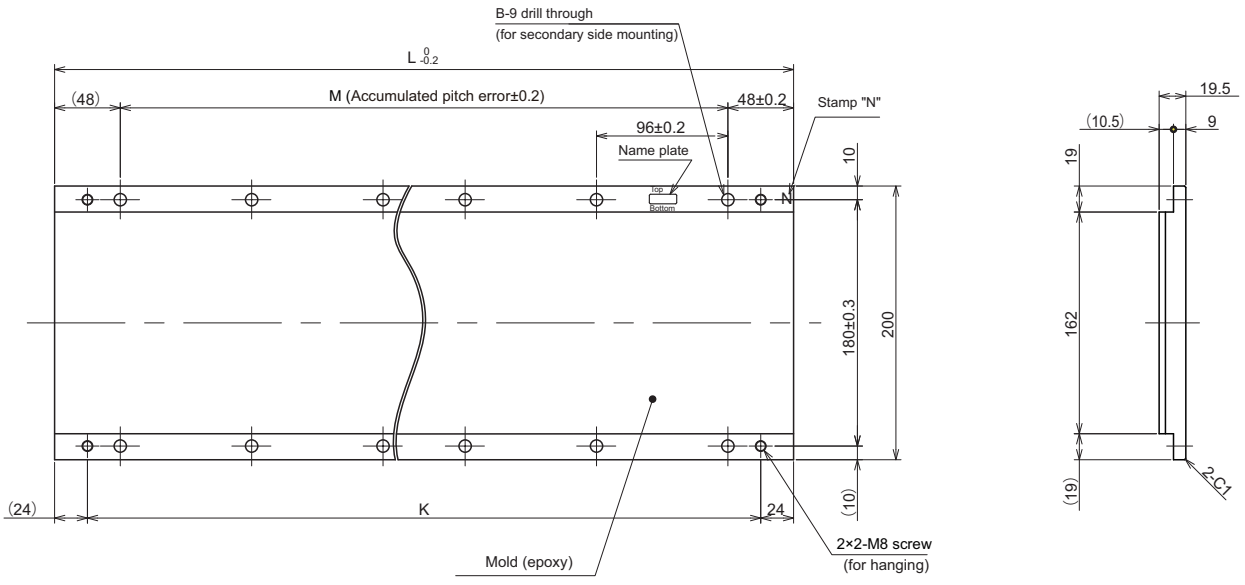
< Primary side >

LM-FP4B-12M-1WW0



< Secondary side >

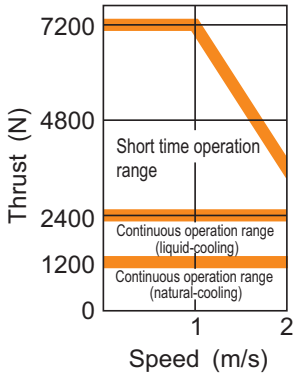
LM-FS40- □ -1WW0



Model	Variable dimensions			
	L	M	K	B
LM-FS40-480-1WW0	480	4X96(=384)	432	5×2
LM-FS40-576-1WW0	576	5X96(=480)	528	6×2

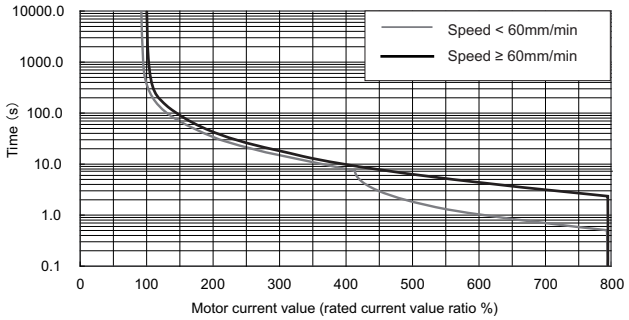
Thrust		Linear servo motor type		Explanation of type	
Rated (natural-cooling)	1200N	Primary side (coil)	LM-FP4D-24M -1WW0		
Rated (liquid-cooling)	2400N	Secondary side (magnet)	(1) LM-FS40 -□-1WW0	(1) Length [mm]	480
Maximum	7200N				576

Thrust Characteristics

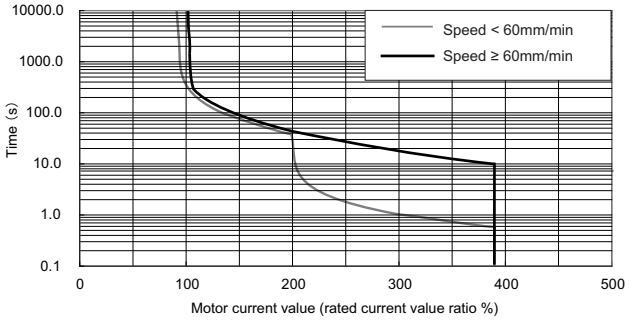


Servo overload protection characteristics

D series (For natural-cooling)



D series (For liquid-cooling)



Specifications

Item		Specifications	
		Standard	Drive with one unit and two motors
Compatible drive unit (*1)	1-axis type	MDS-D-V1-160	MDS-D-V1-320
	2-axis type	MDS-D-V2-16080 (L) MDS-D-V2-160160	-
	3-axis type	-	-
	Regenerative resistor type	-	-
Power facility capacity [kVA]		18	36.0
Current	Rated (natural-cooling) [Arms]	14.1	28.3
	Rated (liquid-cooling) [Arms]	28.6	57.3
	Maximum [Arms]	101.9	203.9
Cooling method		Natural-cooling, liquid-cooling	
Thrust	Rated (natural-cooling) [N]	1200	2400
	Rated (liquid-cooling) [N]	2400	4800
	Maximum [N]	7200	14400
Maximum speed [m/s] (*2)		2.0	
Magnetic attraction force [N]		18000	
Mass	Primary side [kg]	28	28×2
	Secondary side [kg]	13.5 (480mm) 16.0 (576mm)	
Recommended load mass ratio		15 times linear servo motor primary side mass maximum	
Structure		Open (Degree of protection IP00)	

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2) The above value may be limited by the maximum speed of the linear scale.

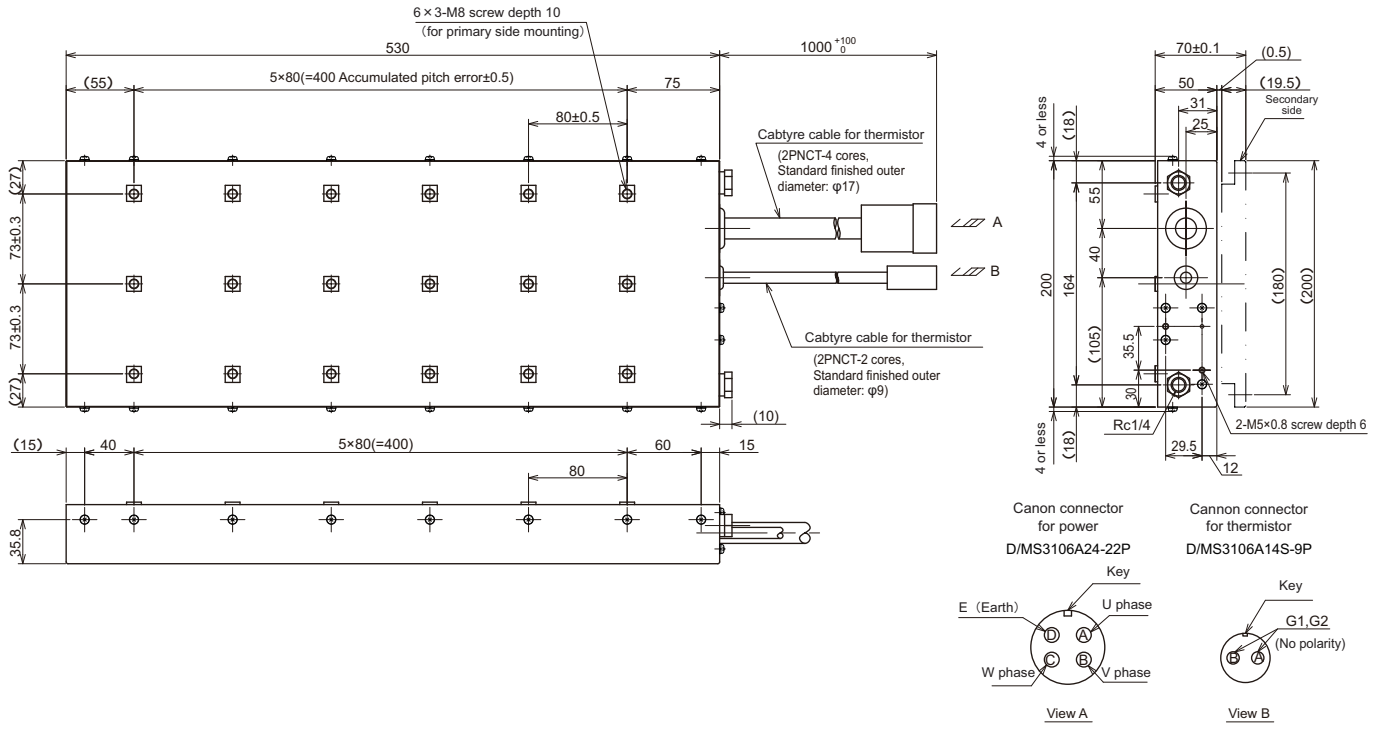
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C (with no freezing) Storage: -15°C to 55°C (with no freezing)
Ambient humidity	Operation: 80%RH or less (with no dew condensation) Storage: 90%RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, or dust
Vibration	49m/s ^{2} or less
Altitude	1000 meters or less above sea level

Outline dimension drawings [Unit : mm]

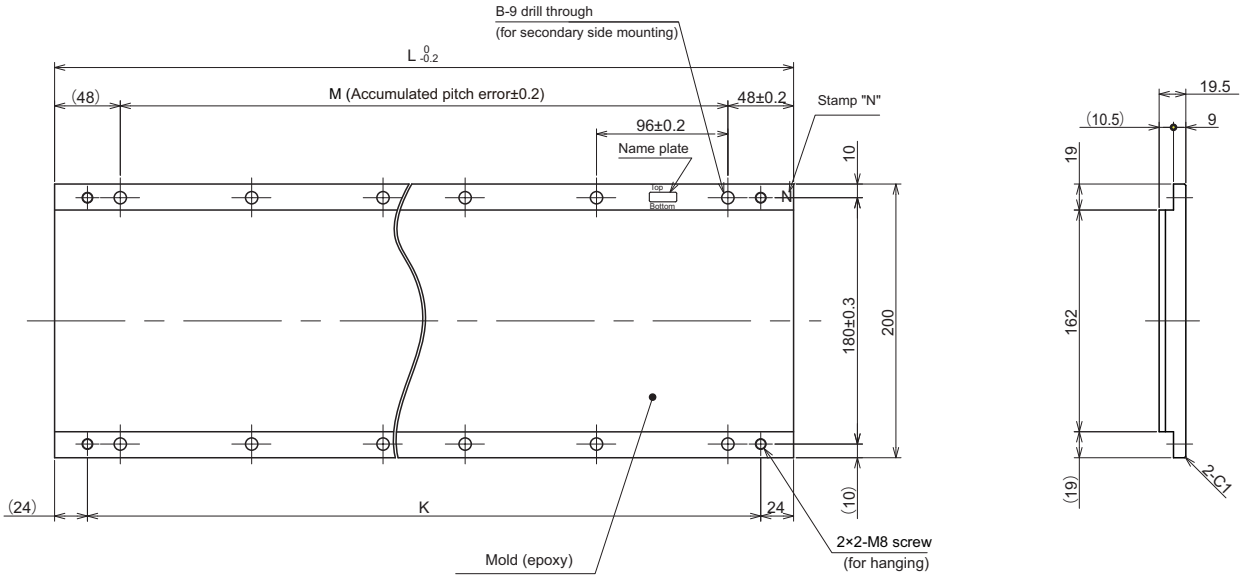
< Primary side >

LM-FP4D-24M-1WW0



< Secondary side >

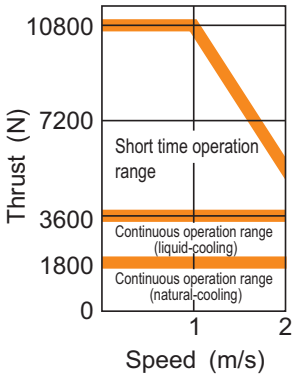
LM-FS40- □ -1WW0



Model	Variable dimensions			
	L	M	K	B
LM-FS40-480-1WW0	480	4X96(=384)	432	5×2
LM-FS40-576-1WW0	576	5X96(=480)	528	6×2

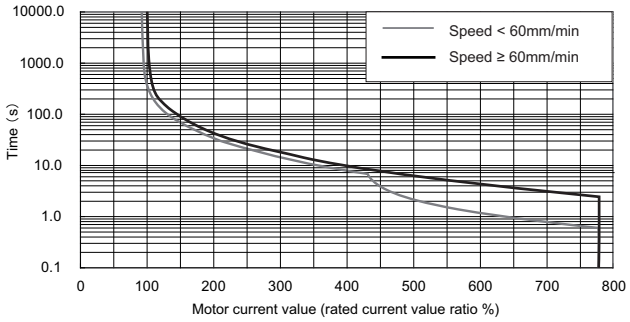
Thrust		Linear servo motor type		Explanation of type	
Rated (natural-cooling)	1800N	Primary side (coil)	LM-FP4F-36M -1WW0		
Rated (liquid-cooling)	3600N	Secondary side (magnet)	(1) LM-FS40 -□-1WW0	(1) Length [mm]	480
Maximum	10800N				576

Thrust Characteristics

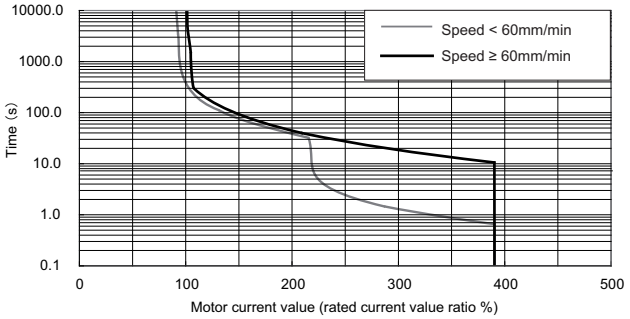


Servo overload protection characteristics

D series (For natural-cooling)



D series (For liquid-cooling)



Specifications

Item		Specifications
		Standard
Compatible drive unit (*1)	1-axis type	MDS-D-V1-320
	2-axis type	-
	3-axis type	-
	Regenerative resistor type	-
Power facility capacity [kVA]		18
Current	Rated (natural-cooling) [Arms]	24.7
	Rated (liquid-cooling) [Arms]	49.2
	Maximum [Arms]	174.9
Cooling method		Natural-cooling, liquid-cooling
Thrust	Rated (natural-cooling) [N]	1800
	Rated (liquid-cooling) [N]	3600
	Maximum [N]	10800
Maximum speed [m/s] (*2)		2.0
Magnetic attraction force [N]		27000
Mass	Primary side [kg]	42
	Secondary side [kg]	13.5 (480mm) 16.0 (576mm)
Recommended load mass ratio		15 times linear servo motor primary side mass maximum
Structure		Open (Degree of protection IP00)

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2) The above value may be limited by the maximum speed of the linear scale.

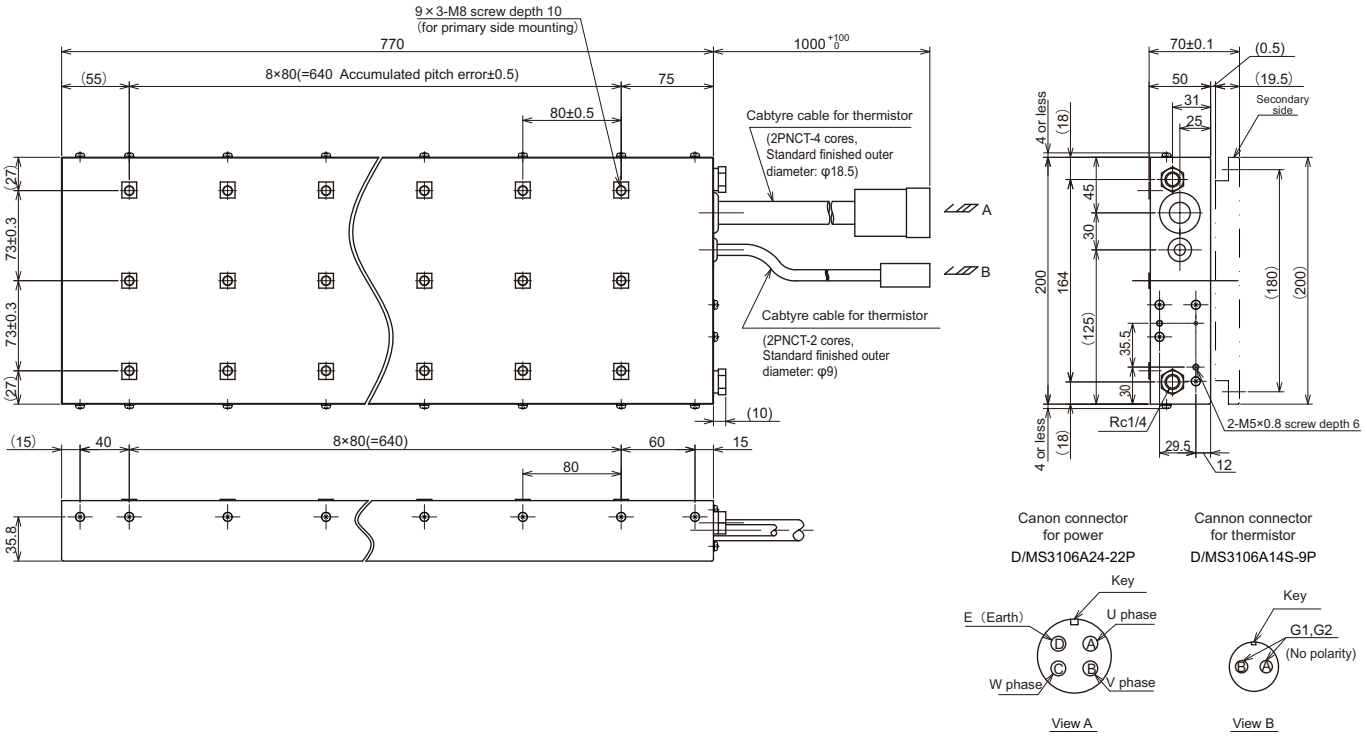
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C (with no freezing) Storage: -15°C to 55°C (with no freezing)
Ambient humidity	Operation: 80%RH or less (with no dew condensation) Storage: 90%RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, or dust
Vibration	49m/s ^{2} or less
Altitude	1000 meters or less above sea level

Outline dimension drawings [Unit : mm]

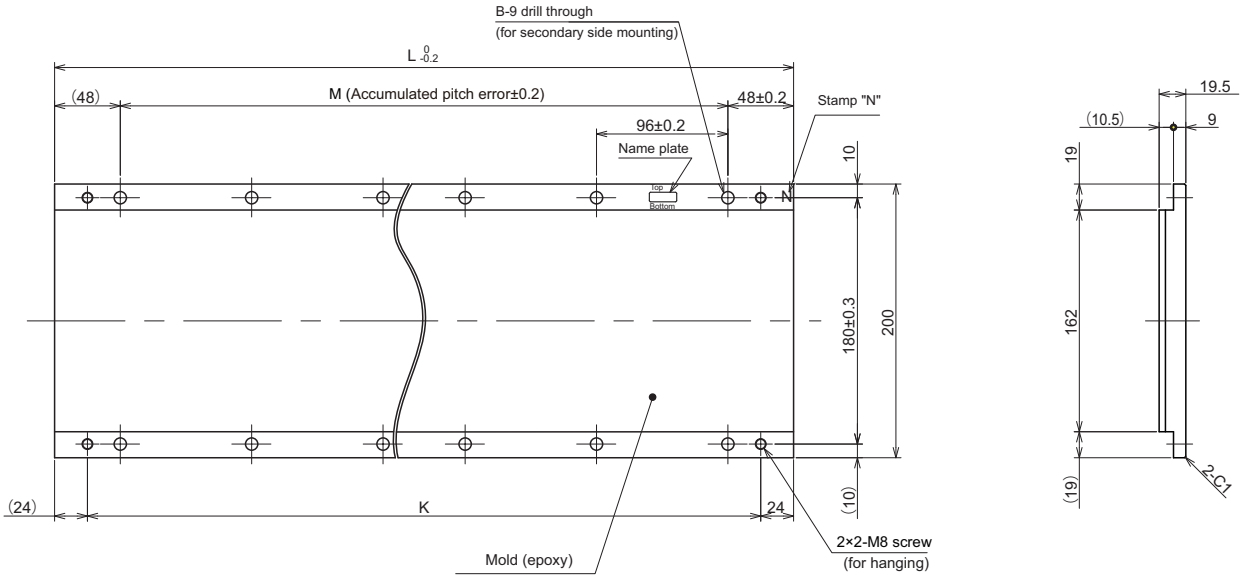
< Primary side >

LM-FP4F-36M-1WW0



< Secondary side >

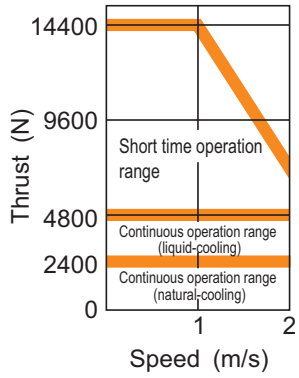
LM-FS40- □ -1WW0



Model	Variable dimensions			
	L	M	K	B
LM-FS40-480-1WW0	480	4X96(=384)	432	5×2
LM-FS40-576-1WW0	576	5X96(=480)	528	6×2

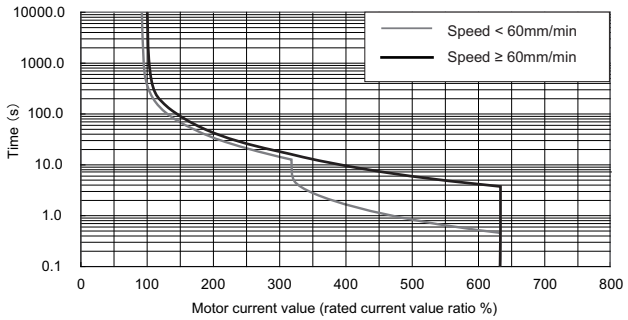
Thrust		Linear servo motor type		Explanation of type	
Rated (natural-cooling)	2400N	Primary side (coil)	LM-FP4H-48M -1WW0		
Rated (liquid-cooling)	4800N	Secondary side (magnet)	(1) LM-FS40 -□-1WW0	(1) Length [mm]	480
Maximum	14400N				576

Thrust Characteristics

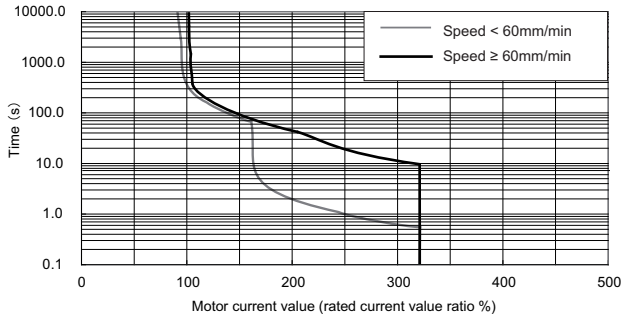


Servo overload protection characteristics

D series (For natural-cooling)



D series (For liquid-cooling)



Specifications

Item		Specifications
		Standard
Compatible drive unit (*1)	1-axis type	MDS-D-V1-320
	2-axis type	-
	3-axis type	-
	Regenerative resistor type	-
Power facility capacity [kVA]		18
Current	Rated (natural-cooling) [Arms]	33.6
	Rated (liquid-cooling) [Arms]	65.8
	Maximum [Arms]	237.4
Cooling method		Natural-cooling, liquid-cooling
Thrust	Rated (natural-cooling) [N]	2400
	Rated (liquid-cooling) [N]	4800
	Maximum [N]	14400
Maximum speed [m/s] (*2)		2.0
Magnetic attraction force [N]		36000
Mass	Primary side [kg]	56
	Secondary side [kg]	13.5 (480mm) 16.0 (576mm)
Recommended load mass ratio		15 times linear servo motor primary side mass maximum
Structure		Open (Degree of protection IP00)

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2) The above value may be limited by the maximum speed of the linear scale.

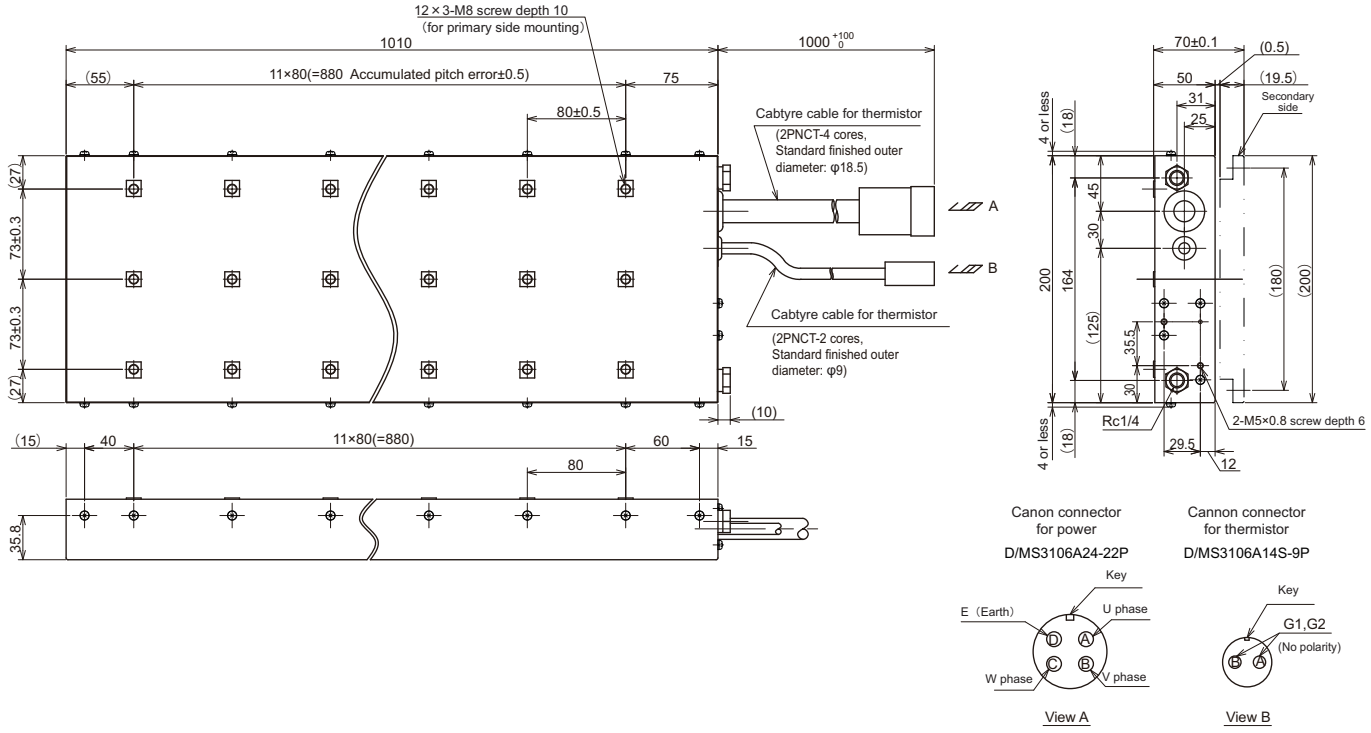
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C (with no freezing) Storage: -15°C to 55°C (with no freezing)
Ambient humidity	Operation: 80%RH or less (with no dew condensation) Storage: 90%RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, or dust
Vibration	49m/s ^{2} or less
Altitude	1000 meters or less above sea level

Outline dimension drawings [Unit : mm]

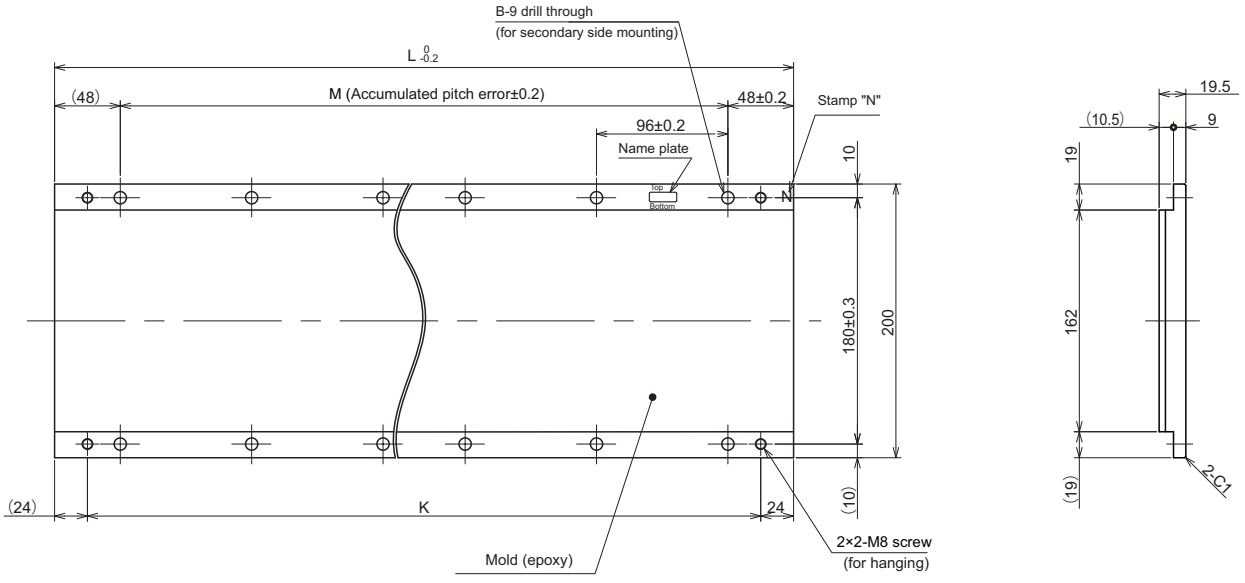
< Primary side >

LM-FP4H-48M-1WW0



< Secondary side >

LM-FS40- □ -1WW0



Model	Variable dimensions			
	L	M	K	B
LM-FS40-480-1WW0	480	4X96(=384)	432	5×2
LM-FS40-576-1WW0	576	5X96(=480)	528	6×2

Spindle motor

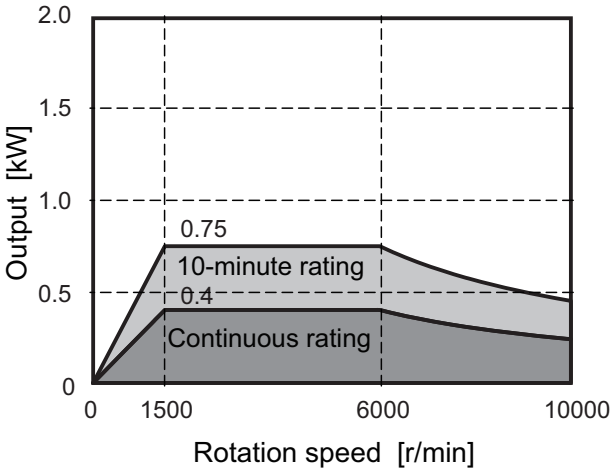
Base rotation speed 1500r/min series

SJ-VL0.75-01T

Specifications

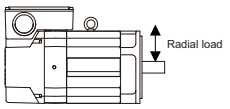
Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-D-SP-20
	2-axis type	MDS-D-SP2-2020 (L,M) MDS-D-SP2-4020 (M)
	Multi axis integrated type	-
	Regenerative resistor type	MDS-D-SPJ3-075/075NA
Output capacity[kW]	Continuous rated output	0.4
	Short time rated output	0.75 (10-minute rating)
	Standard output during acceleration/ deceleration	0.75
	Actual acceleration/deceleration output (*3)	0.9
Base rotation speed[r/min]		1500
Maximum rotation speed[r/min]		10000
Frame No.		A71
Continuous rated torque[N・m]		2.55
GD^2 [kg・m^2]		0.0053
Inertia[kg・m^2]		0.0013
Tolerable radial load(*2) [N]		490
Cooling fan	Input voltage	Single-phase 200V
	Maximum power consumption	14W
Degree of protection		IP44
Mass[kg]		15
Heat-resistant class		155(F)

Output characteristics



(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)



(Note) The load point is at the one-half of the shaft length.

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

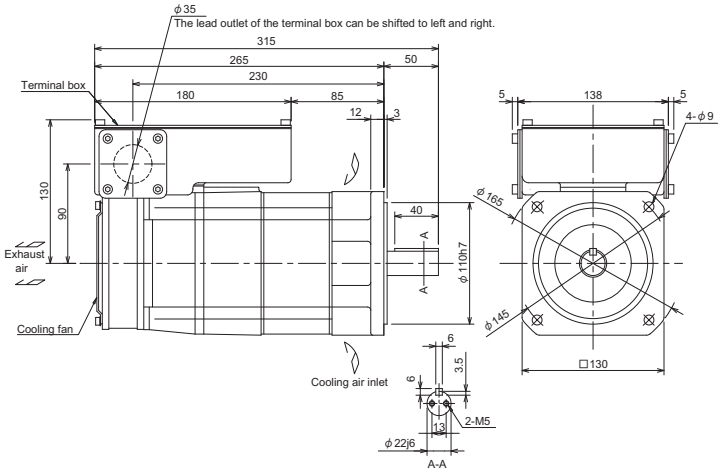
(*4) The acceleration/deceleration frequency is limited by the regenerative resistor.

Environmental conditions

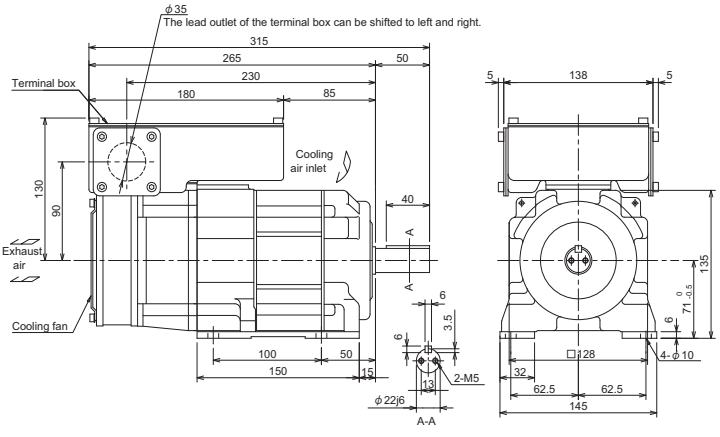
Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Outline dimension drawings [Unit : mm]

SJ-VL0.75-01T with standard flange



SJ-VL0.75-01T with standard legs



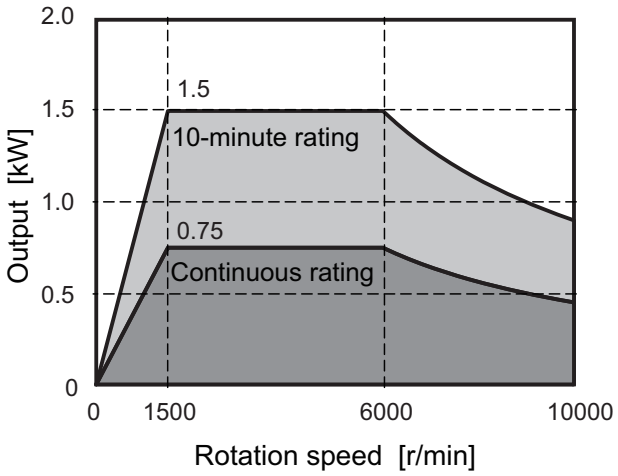
Base rotation speed 1500r/min series

SJ-VL1.5-01T

Specifications

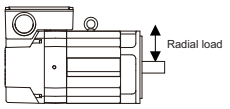
Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-D-SP-20
	2-axis type	MDS-D-SP2-2020 (L,M) MDS-D-SP2-4020 (M)
	Multi axis integrated type	-
	Regenerative resistor type	MDS-D-SPJ3-22/22NA
Output capacity[kW]	Continuous rated output	0.75
	Short time rated output	1.5 (10-minute rating)
	Standard output during acceleration/ deceleration	1.5
	Actual acceleration/deceleration output (*3)	1.8
Base rotation speed[r/min]		1500
Maximum rotation speed[r/min]		10000
Frame No.		B71
Continuous rated torque[N・m]		4.77
GD^2 [kg・m^2]		0.0096
Inertia[kg・m^2]		0.0024
Tolerable radial load(*2) [N]		490
Cooling fan	Input voltage	Single-phase 200V
	Maximum power consumption	14W
Degree of protection		IP44
Mass[kg]		20
Heat-resistant class		155(F)

Output characteristics



(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)



(Note) The load point is at the one-half of the shaft length.

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

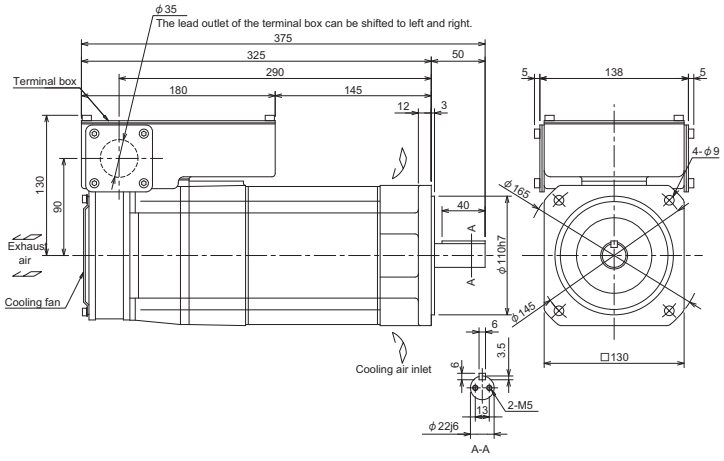
(*4) The acceleration/deceleration frequency is limited by the regenerative resistor.

Environmental conditions

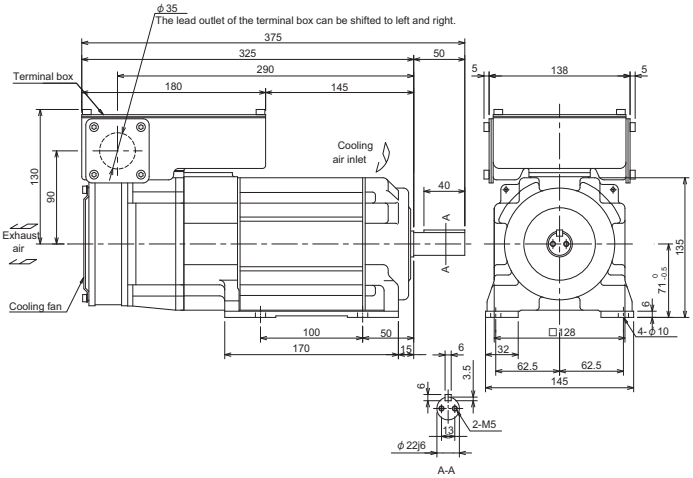
Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Outline dimension drawings [Unit : mm]

SJ-VL1.5-01T with standard flange



SJ-VL1.5-01T with standard flange



Base rotation speed 1500r/min series

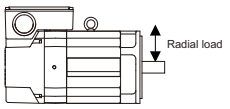
SJ-V2.2-01T

Specifications

Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-D-SP-40
	2-axis type	MDS-D-SP2-4020 (L) MDS-D-SP2-4040S (L,M) MDS-D-SP2-4040 (L,M) MDS-D-SP2-8040 (M)
	Multi axis integrated type	-
	Regenerative resistor type	MDS-D-SPJ3-22/22NA
Output capacity[kW]	Continuous rated output	1.5
	Short time rated output	2.2 (15-minute rating)
	Standard output during acceleration/ deceleration	2.2
	Actual acceleration/deceleration output (*3)	2.6
Base rotation speed[r/min]		1500
Maximum rotation speed[r/min]		10000
Frame No.		A90
Continuous rated torque[N・m]		9.5
GD^2 [kg・m^2]		0.0027
Inertia[kg・m^2]		0.00675
Tolerable radial load(*2) [N]		980
Cooling fan	Input voltage	Single-phase 200V
	Maximum power consumption	36W
Degree of protection		IP44
Mass[kg]		25
Heat-resistant class		155(F)

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

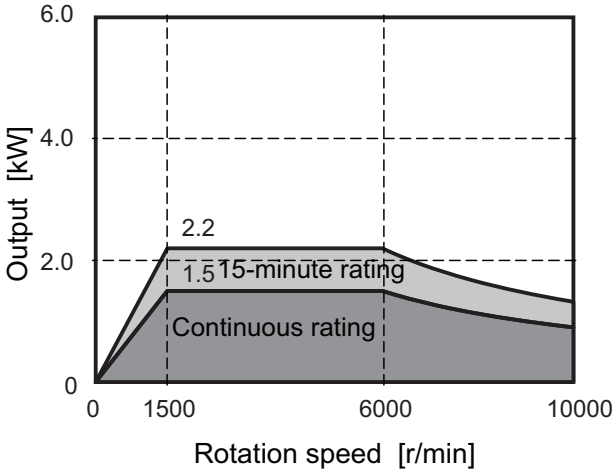
(*2)



(Note) The load point is at the one-half of the shaft length.

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

Output characteristics

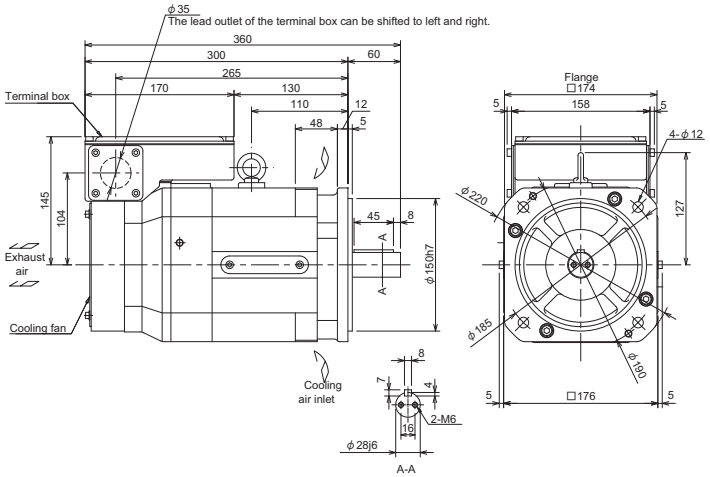


Environmental conditions

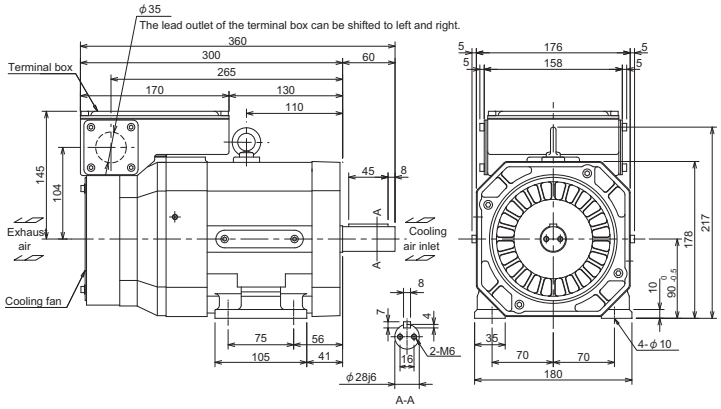
Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Outline dimension drawings [Unit : mm]

SJ-V2.2-01T with standard flange



SJ-V2.2-01T with standard legs



Base rotation speed 1500r/min series

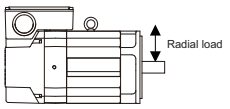
SJ-V3.7-01T

Specifications

Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-D-SP-80
	2-axis type	MDS-D-SP2-8040 (L) MDS-D-SP2-16080S (M) MDS-D-SP2-8080 (L,M) MDS-D-SP2-16080 (M)
	Multi axis integrated type	-
	Regenerative resistor type	MDS-D-SPJ3-37/37NA
Output capacity[kW]	Continuous rated output	2.2
	Short time rated output	3.7 (15-minute rating)
	Standard output during acceleration/ deceleration	3.7
	Actual acceleration/deceleration output (*3)	4.4
Base rotation speed[r/min]		1500
Maximum rotation speed[r/min]		10000
Frame No.		B90
Continuous rated torque[N・m]		14.0
GD^2 [kg・m^2]		0.0035
Inertia[kg・m^2]		0.009
Tolerable radial load(*2) [N]		980
Cooling fan	Input voltage	Single-phase 200V
	Maximum power consumption	36W
Degree of protection		IP44
Mass[kg]		30
Heat-resistant class		155(F)

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

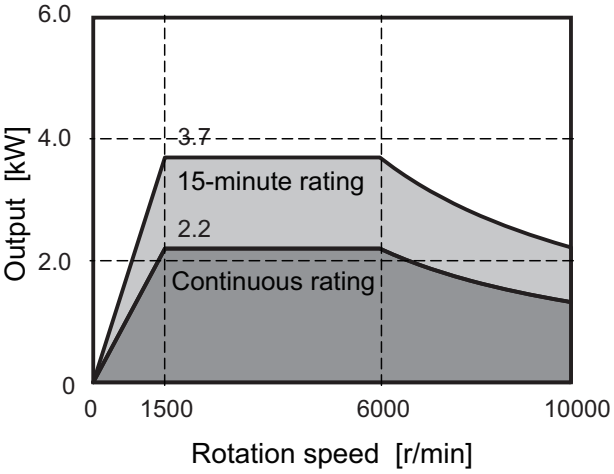
(*2)



(Note) The load point is at the one-half of the shaft length.

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

Output characteristics

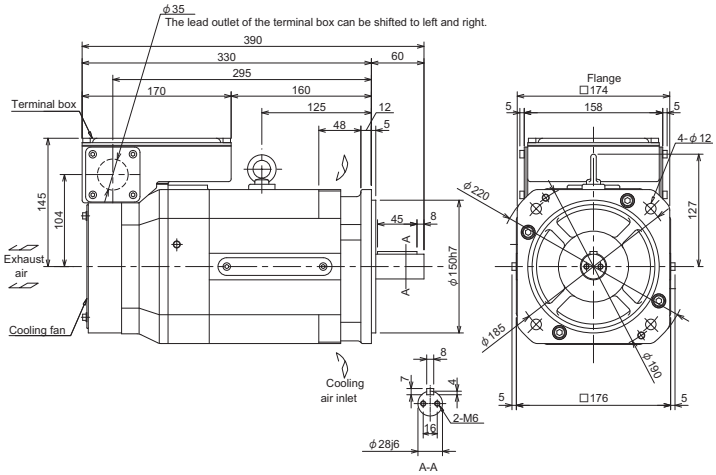


Environmental conditions

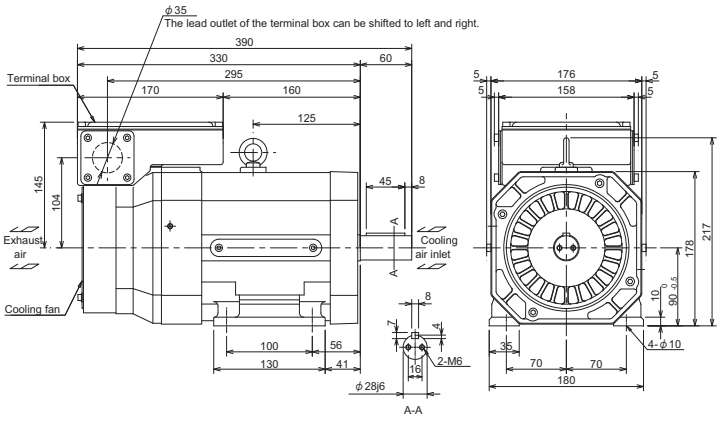
Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Outline dimension drawings [Unit : mm]

SJ-V3.7-01T with standard flange



SJ-V3.7-01T with standard legs



Base rotation speed 3000r/min series

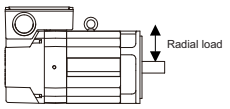
SJ-V3.7-02ZT

Specifications

Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-D-SP-80
	2-axis type	MDS-D-SP2-8040 (L) MDS-D-SP2-16080S (M) MDS-D-SP2-8080 (M) MDS-D-SP2-16080 (M)
	Multi axis integrated type	-
	Regenerative resistor type	-
Output capacity[kW]	Continuous rated output	2.2
	Short time rated output	3.7 (15-minute rating)
	Standard output during acceleration/ deceleration	3.7
	Actual acceleration/deceleration output (*3)	4.4
Base rotation speed[r/min]		3000
Maximum rotation speed[r/min]		15000
Frame No.		A90
Continuous rated torque[N・m]		7.0
GD^2 [kg・m^2]		0.027
Inertia[kg・m^2]		0.00675
Tolerable radial load(*2) [N]		245
Cooling fan	Input voltage	Single-phase 200V
	Maximum power consumption	36W
Degree of protection		IP44
Mass[kg]		25
Heat-resistant class		155(F)

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

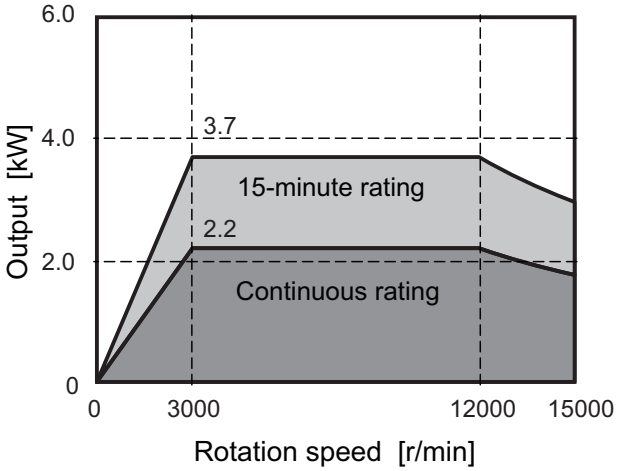
(*2)



(Note) The load point is at the one-half of the shaft length.

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

Output characteristics

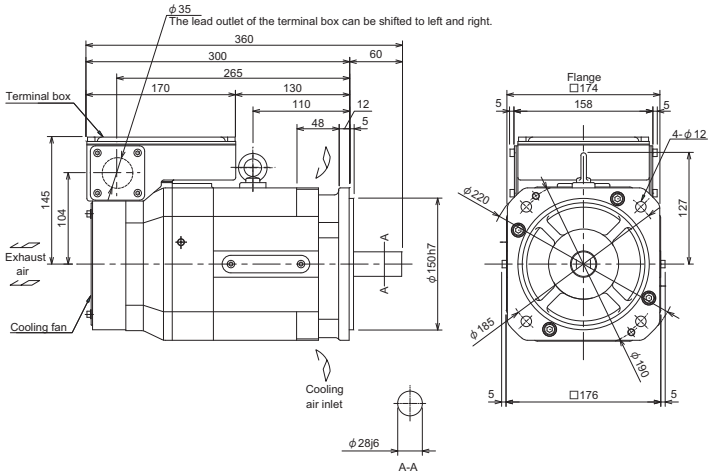


Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Outline dimension drawings [Unit : mm]

SJ-V3.7-02ZT with standard flange



Base rotation speed 1500r/min series

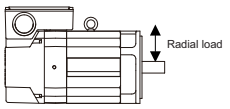
SJ-V5.5-01ZT

Specifications

Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-D-SP-80
	2-axis type	MDS-D-SP2-8040 (L) MDS-D-SP2-16080S (M) MDS-D-SP2-8080 (L,M) MDS-D-SP2-16080 (M)
	Multi axis integrated type	MDS-DM-SPV2/SPV2F-10080 MDS-DM-SPV3/SPV3F-10080
	Regenerative resistor type	MDS-D-SPJ3-55/55NA
Output capacity[kW]	Continuous rated output	3.7
	Short time rated output	5.5 (30-minute rating)
	Standard output during acceleration/deceleration	5.5
	Actual acceleration/deceleration output (*3)	6.6
Base rotation speed[r/min]		1500
Maximum rotation speed[r/min]		12000
Frame No.		D90
Continuous rated torque[N・m]		23.6
GD^2 [kg・m^2]		0.059
Inertia[kg・m^2]		0.0148
Tolerable radial load(*2) [N]		980
Cooling fan	Input voltage	Single-phase 200V
	Maximum power consumption	36W
Degree of protection		IP44
Mass[kg]		49
Heat-resistant class		155(F)

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

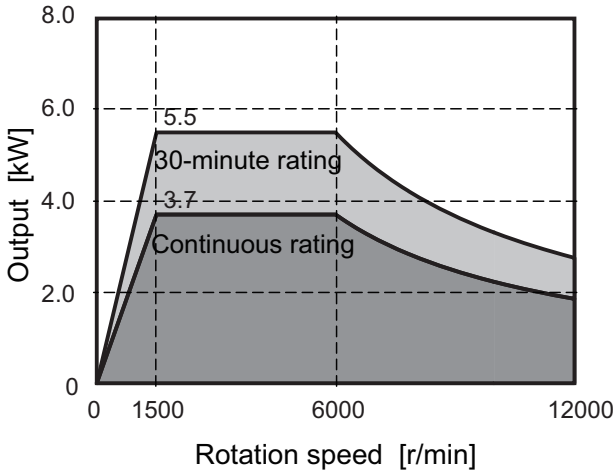
(*2)



(Note) The load point is at the one-half of the shaft length.

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

Output characteristics

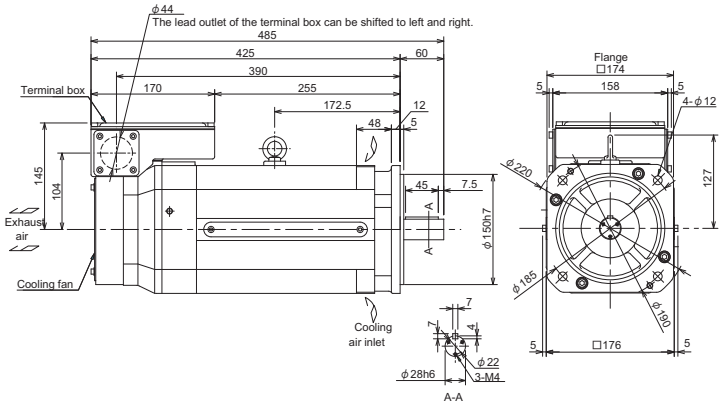


Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Outline dimension drawings [Unit : mm]

SJ-V5.5-01ZT with standard flange



Base rotation speed 1500r/min series

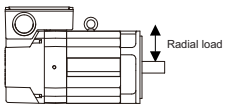
SJ-V7.5-01ZT

Specifications

Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-D-SP-160
	2-axis type	MDS-D-SP2-16080S (L) MDS-D-SP2-16080 (L)
	Multi axis integrated type	MDS-DM-SPV2/SPV2F-10080 MDS-DM-SPV3/SPV3F-10080
	Regenerative resistor type	MDS-D-SPJ3-75/75NA
Output capacity[kW]	Continuous rated output	5.5
	Short time rated output	7.5 (30-minute rating)
	Standard output during acceleration/deceleration	7.5
	Actual acceleration/deceleration output (*3)	9
Base rotation speed[r/min]		1500
Maximum rotation speed[r/min]		12000
Frame No.		A112
Continuous rated torque[N・m]		35.0
GD^2 [kg・m^2]		0.098
Inertia[kg・m^2]		0.0245
Tolerable radial load(*2) [N]		980
Cooling fan	Input voltage	3-phase 200V
	Maximum power consumption	70W
Degree of protection		IP44
Mass[kg]		60
Heat-resistant class		155(F)

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

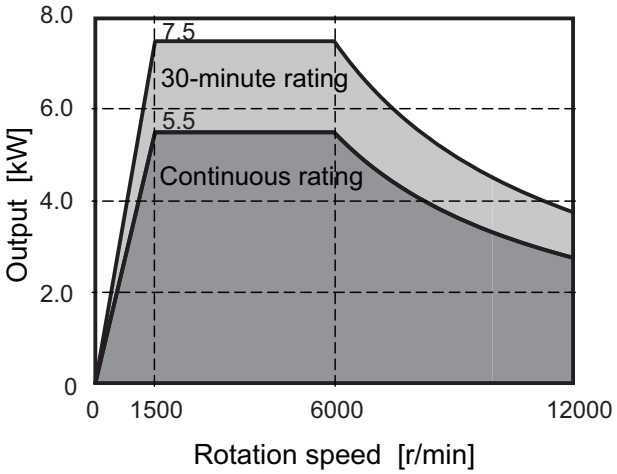
(*2)



(Note) The load point is at the one-half of the shaft length.

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

Output characteristics

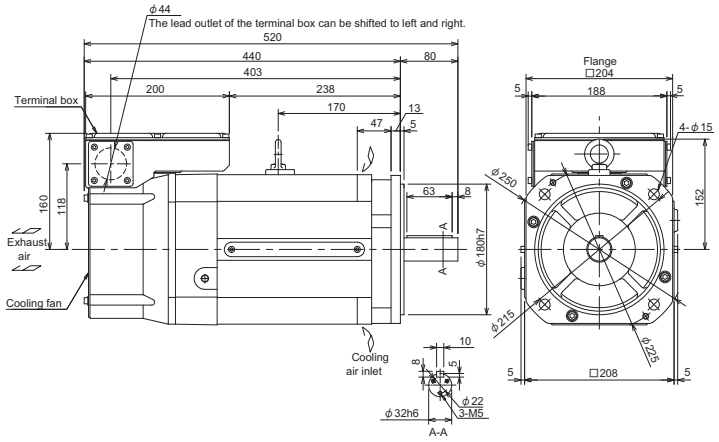


Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Outline dimension drawings [Unit : mm]

SJ-V7.5-01ZT with standard flange



Base rotation speed 1500r/min series

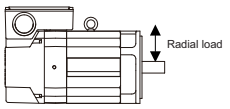
SJ-V7.5-03ZT

Specifications

Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-D-SP-160
	2-axis type	MDS-D-SP2-16080S (L) MDS-D-SP2-16080 (L)
	Multi axis integrated type	MDS-DM-SPV2/SPV2F-16080 MDS-DM-SPV3/SPV3F-16080
	Regenerative resistor type	MDS-D-SPJ3-110/110NA (MAX:10000r/min)
Output capacity[kW]	Continuous rated output	5.5
	Short time rated output	7.5 (30-minute rating)
	Standard output during acceleration/ deceleration	7.5
	Actual acceleration/deceleration output (*3)	9
Base rotation speed[r/min]		1500
Maximum rotation speed[r/min]		12000
Frame No.		A112
Continuous rated torque[N・m]		35.0
GD^2 [kg・m^2]		0.098
Inertia[kg・m^2]		0.0245
Tolerable radial load(*2) [N]		980
Cooling fan	Input voltage	3-phase 200V
	Maximum power consumption	70W
Degree of protection		IP44
Mass[kg]		60
Heat-resistant class		155(F)

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

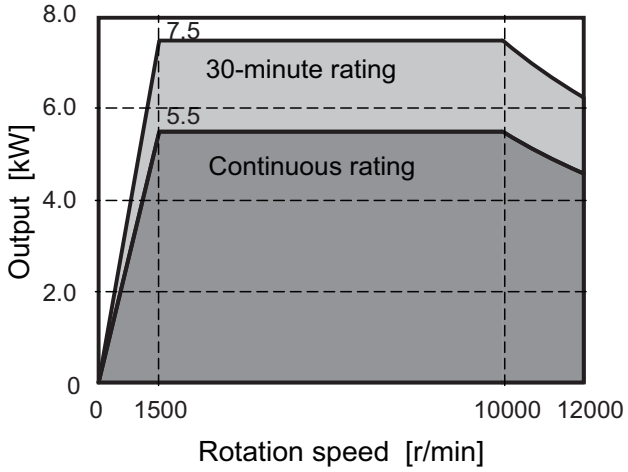
(*2)



(Note) The load point is at the one-half of the shaft length.

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

Output characteristics

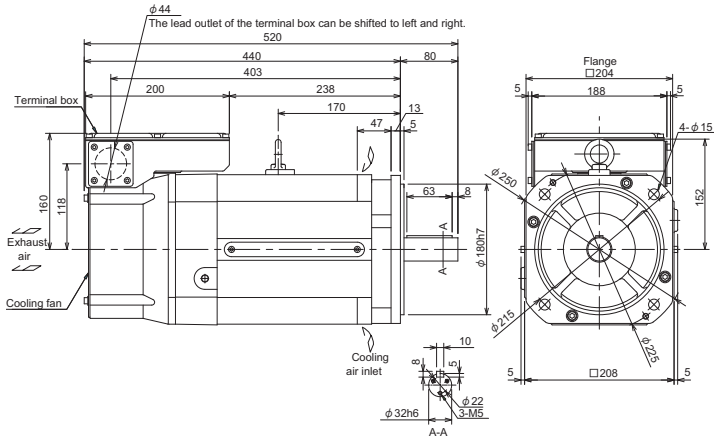


Environmental conditions

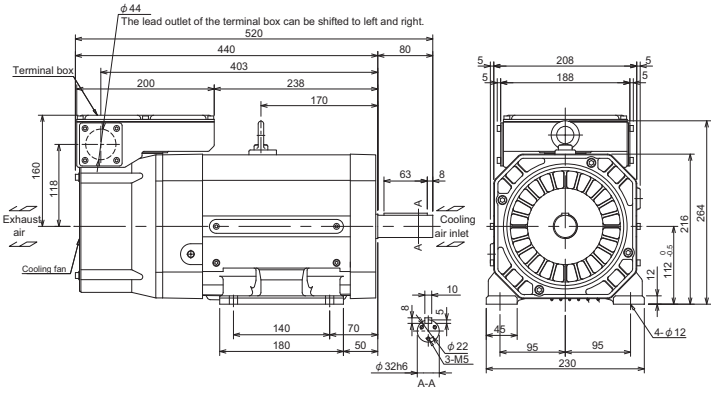
Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Outline dimension drawings [Unit : mm]

SJ-V7.5-03ZT with standard flange



SJ-V7.5-03ZT with standard legs



Base rotation speed 1500r/min series

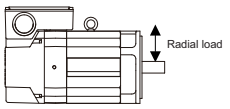
SJ-V11-01ZT

Specifications

Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-D-SP-160
	2-axis type	MDS-D-SP2-16080S (L) MDS-D-SP2-16080 (L)
	Multi axis integrated type	MDS-DM-SPV2/SPV2F-16080 MDS-DM-SPV3/SPV3F-16080
	Regenerative resistor type	MDS-D-SPJ3-110/110NA
Output capacity[kW]	Continuous rated output	7.5
	Short time rated output	11 (30-minute rating)
	Standard output during acceleration/deceleration	11
	Actual acceleration/deceleration output (*3)	13.2
Base rotation speed[r/min]		1500
Maximum rotation speed[r/min]		8000
Frame No.		B112
Continuous rated torque[N・m]		47.7
GD^2 [kg・m^2]		0.12
Inertia[kg・m^2]		0.03
Tolerable radial load(*2) [N]		1960
Cooling fan	Input voltage	3-phase 200V
	Maximum power consumption	40W
Degree of protection		IP44
Mass[kg]		70
Heat-resistant class		155(F)

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

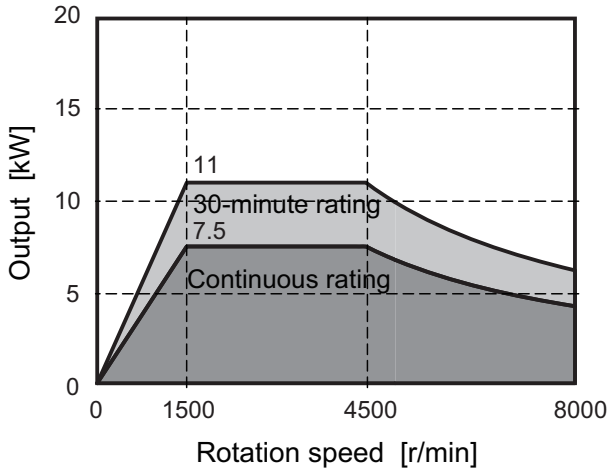
(*2)



(Note) The load point is at the one-half of the shaft length.

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

Output characteristics

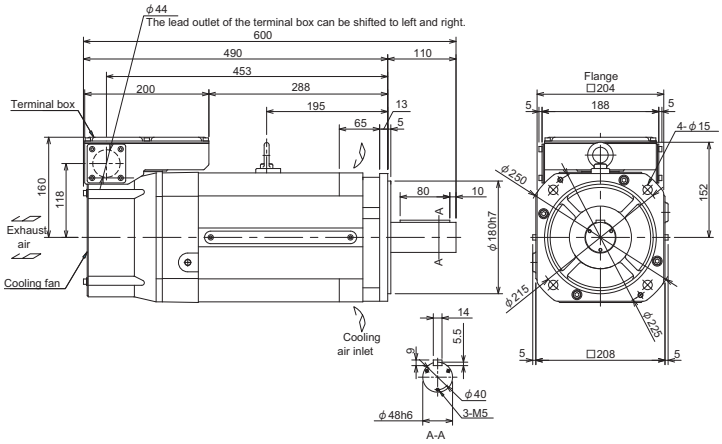


Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Outline dimension drawings [Unit : mm]

SJ-V11-01ZT with standard flange



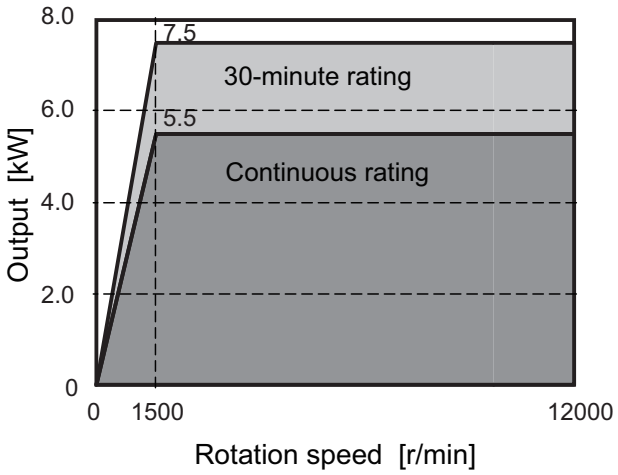
Base rotation speed 1500r/min series

SJ-V11-06ZT

Specifications

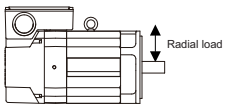
Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-D-SP-200
	2-axis type	-
	Multi axis integrated type	MDS-DM-SPV2/SPV2F-20080 MDS-DM-SPV3/SPV3F-20080
	Regenerative resistor type	-
Output capacity[kW]	Continuous rated output	5.5
	Short time rated output	7.5 (30-minute rating)
	Standard output during acceleration/ deceleration	7.5
	Actual acceleration/deceleration output (*3)	9
Base rotation speed[r/min]		1500
Maximum rotation speed[r/min]		12000
Frame No.		A112
Continuous rated torque[N・m]		35.0
GD^2 [kg・m^2]		0.098
Inertia[kg・m^2]		0.025
Tolerable radial load(*2) [N]		980
Cooling fan	Input voltage	3-phase 200V
	Maximum power consumption	40W
Degree of protection		IP44
Mass[kg]		60
Heat-resistant class		155(F)

Output characteristics



(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)



(Note) The load point is at the one-half of the shaft length.

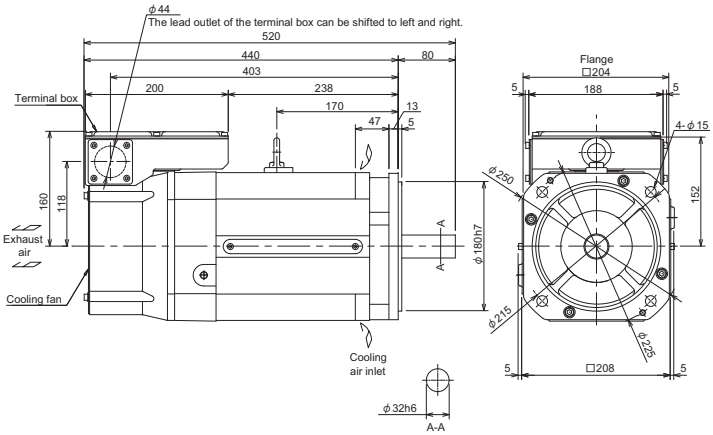
(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Outline dimension drawings [Unit : mm]

SJ-V11-06ZT with standard flange



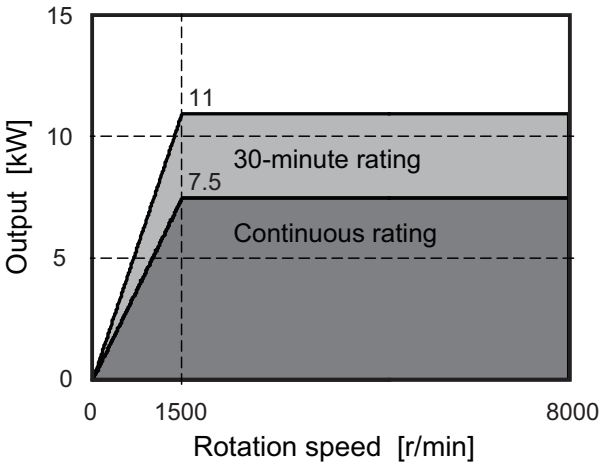
Base rotation speed 1500r/min series

SJ-V11-08ZT

Specifications

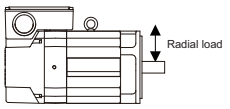
Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-D-SP-200
	2-axis type	-
	Multi axis integrated type	-
	Regenerative resistor type	-
Output capacity[kW]	Continuous rated output	7.5
	Short time rated output	11 (30-minute rating)
	Standard output during acceleration/ deceleration	11
	Actual acceleration/deceleration output (*3)	13.2
Base rotation speed[r/min]		1500
Maximum rotation speed[r/min]		8000
Frame No.		B112
Continuous rated torque[N・m]		47.7
GD^2 [kg・m^2]		0.12
Inertia[kg・m^2]		0.03
Tolerable radial load(*2) [N]		1470
Cooling fan	Input voltage	3-phase 200V
	Maximum power consumption	40W
Degree of protection		IP44
Mass[kg]		70
Heat-resistant class		155(F)

Output characteristics



(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)



(Note) The load point is at the one-half of the shaft length.

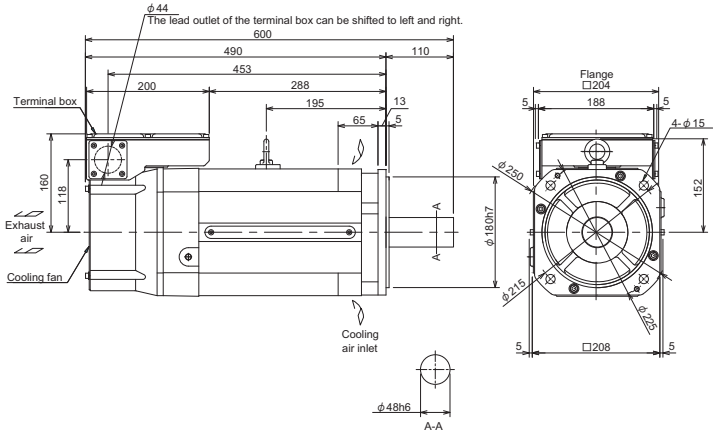
(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Outline dimension drawings [Unit : mm]

SJ-V11-08ZT with standard flange



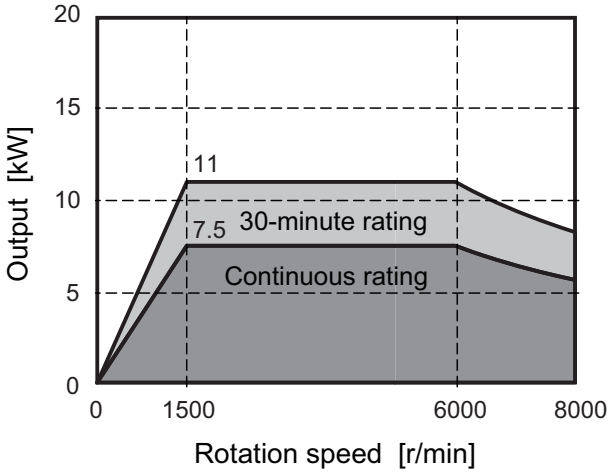
Base rotation speed 1500r/min series

SJ-V11-13ZT

Specifications

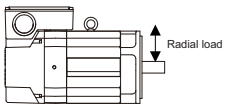
Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-D-SP-200
	2-axis type	-
	Multi axis integrated type	MDS-DM-SPV2/SPV2F-20080 MDS-DM-SPV3/SPV3F-20080
	Regenerative resistor type	-
Output capacity[kW]	Continuous rated output	7.5
	Short time rated output	11 (30-minute rating)
	Standard output during acceleration/ deceleration	11
	Actual acceleration/deceleration output (*3)	13.2
Base rotation speed[r/min]		1500
Maximum rotation speed[r/min]		8000
Frame No.		B112
Continuous rated torque[N・m]		47.7
GD^2 [kg・m^2]		0.12
Inertia[kg・m^2]		0.03
Tolerable radial load(*2) [N]		1960
Cooling fan	Input voltage	3-phase 200V
	Maximum power consumption	70W
Degree of protection		IP44
Mass[kg]		70
Heat-resistant class		155(F)

Output characteristics



(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)



(Note) The load point is at the one-half of the shaft length.

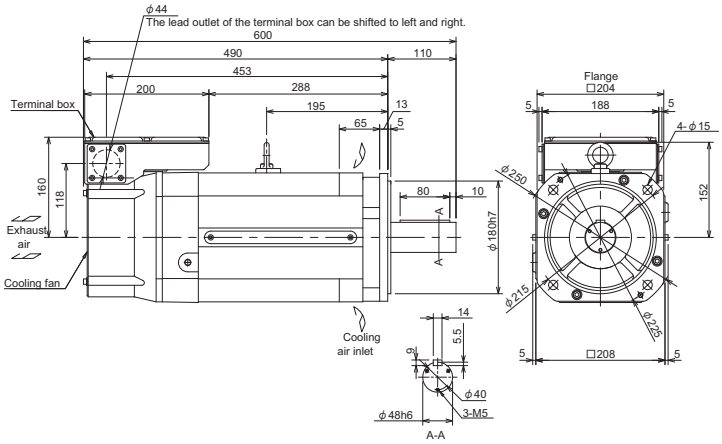
(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Outline dimension drawings [Unit : mm]

SJ-V11-13ZT with standard flange



Base rotation speed 1500r/min series

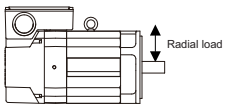
SJ-V15-01ZT

Specifications

Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-D-SP-200
	2-axis type	-
	Multi axis integrated type	MDS-DM-SPV2/SPV2F-20080 MDS-DM-SPV3/SPV3F-20080
	Regenerative resistor type	-
Output capacity[kW]	Continuous rated output	11
	Short time rated output	15 (30-minute rating)
	Standard output during acceleration/ deceleration	15
	Actual acceleration/deceleration output (*3)	18
Base rotation speed[r/min]		1500
Maximum rotation speed[r/min]		8000
Frame No.		A160
Continuous rated torque[N・m]		70.0
GD^2 [kg・m^2]		0.23
Inertia[kg・m^2]		0.0575
Tolerable radial load(*2) [N]		2940
Cooling fan	Input voltage	3-phase 200V
	Maximum power consumption	80W
Degree of protection		IP44
Mass[kg]		110
Heat-resistant class		155(F)

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

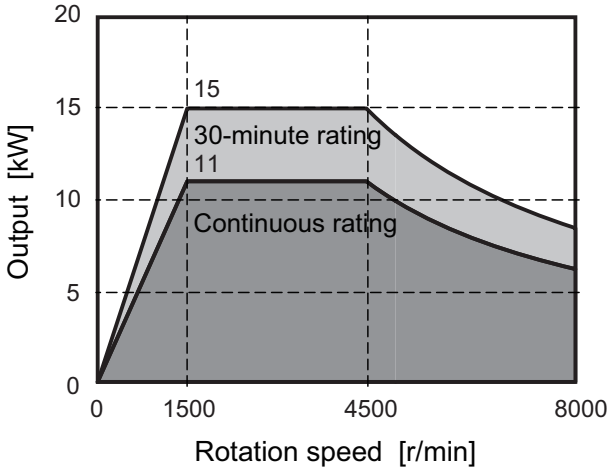
(*2)



(Note) The load point is at the one-half of the shaft length.

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

Output characteristics

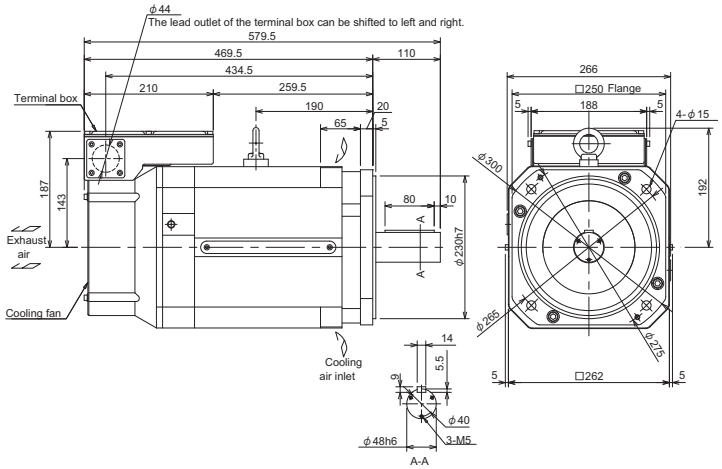


Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Outline dimension drawings [Unit : mm]

SJ-V15-01ZT with standard flange



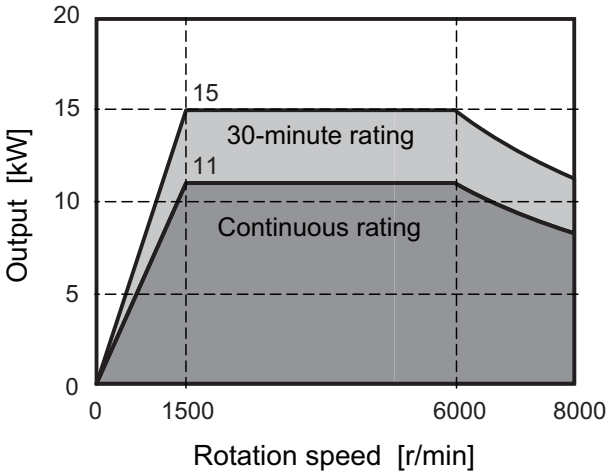
Base rotation speed 1500r/min series

SJ-V15-09ZT

Specifications

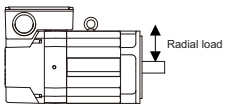
Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-D-SP-200
	2-axis type	-
	Multi axis integrated type	-
	Regenerative resistor type	-
Output capacity[kW]	Continuous rated output	11
	Short time rated output	15 (30-minute rating)
	Standard output during acceleration/ deceleration	15
	Actual acceleration/deceleration output (*3)	18
Base rotation speed[r/min]		1500
Maximum rotation speed[r/min]		8000
Frame No.		A160
Continuous rated torque[N・m]		70.0
GD^2 [kg・m^2]		0.23
Inertia[kg・m^2]		0.0575
Tolerable radial load(*2) [N]		2940
Cooling fan	Input voltage	3-phase 200V
	Maximum power consumption	80W
Degree of protection		IP44
Mass[kg]		110
Heat-resistant class		155(F)

Output characteristics



(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)



(Note) The load point is at the one-half of the shaft length.

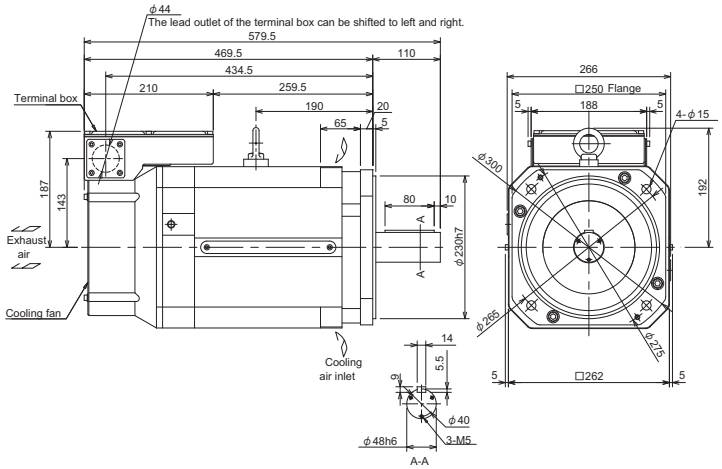
(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Outline dimension drawings [Unit : mm]

SJ-V15-09ZT with standard flange



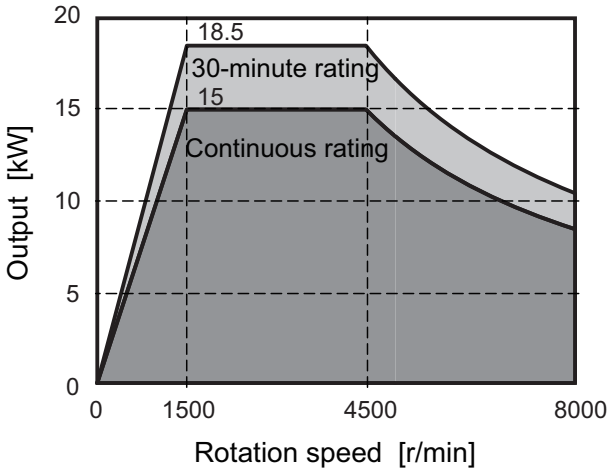
Base rotation speed 1500r/min series

SJ-V18.5-01ZT

Specifications

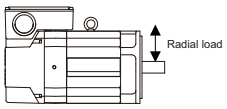
Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-D-SP-200
	2-axis type	-
	Multi axis integrated type	-
	Regenerative resistor type	-
Output capacity[kW]	Continuous rated output	15
	Short time rated output	18.5 (30-minute rating)
	Standard output during acceleration/ deceleration	18.5
	Actual acceleration/deceleration output (*3)	22.2
Base rotation speed[r/min]		1500
Maximum rotation speed[r/min]		8000
Frame No.		A160
Continuous rated torque[N・m]		95.5
GD^2 [kg・m^2]		0.23
Inertia[kg・m^2]		0.0575
Tolerable radial load(*2) [N]		2940
Cooling fan	Input voltage	3-phase 200V
	Maximum power consumption	80W
Degree of protection		IP44
Mass[kg]		110
Heat-resistant class		155(F)

Output characteristics



(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)



(Note) The load point is at the one-half of the shaft length.

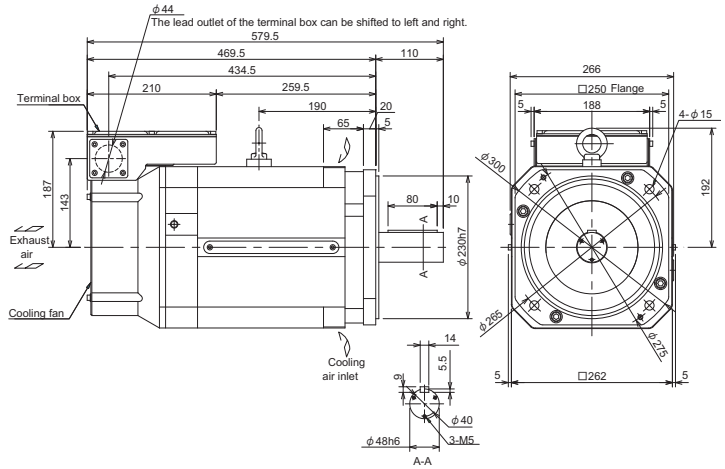
(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

Environmental conditions

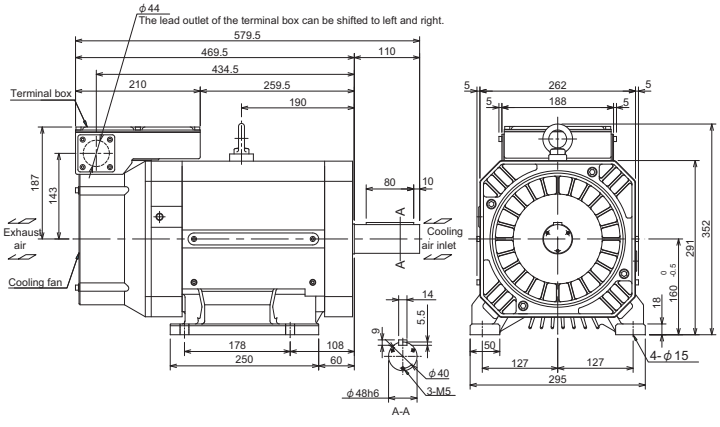
Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Outline dimension drawings [Unit : mm]

SJ-V18.5-01ZT with standard flange



SJ-V18.5-01ZT with standard legs



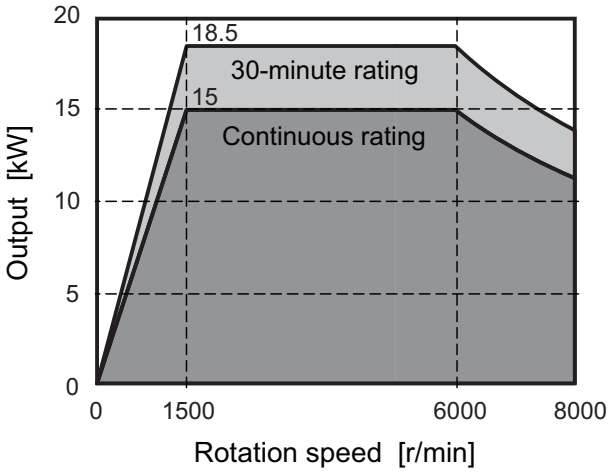
Base rotation speed 1500r/min series

SJ-V18.5-04ZT

Specifications

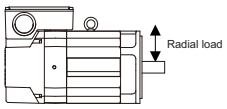
Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-D-SP-240
	2-axis type	-
	Multi axis integrated type	-
	Regenerative resistor type	-
Output capacity[kW]	Continuous rated output	15
	Short time rated output	18.5 (30-minute rating)
	Standard output during acceleration/ deceleration	18.5
	Actual acceleration/deceleration output (*3)	22.2
Base rotation speed[r/min]		1500
Maximum rotation speed[r/min]		8000
Frame No.		A160
Continuous rated torque[N・m]		95.5
GD^2 [kg・m^2]		0.23
Inertia[kg・m^2]		0.0575
Tolerable radial load(*2) [N]		2940
Cooling fan	Input voltage	3-phase 200V
	Maximum power consumption	80W
Degree of protection		IP44
Mass[kg]		110
Heat-resistant class		155(F)

Output characteristics



(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)



(Note) The load point is at the one-half of the shaft length.

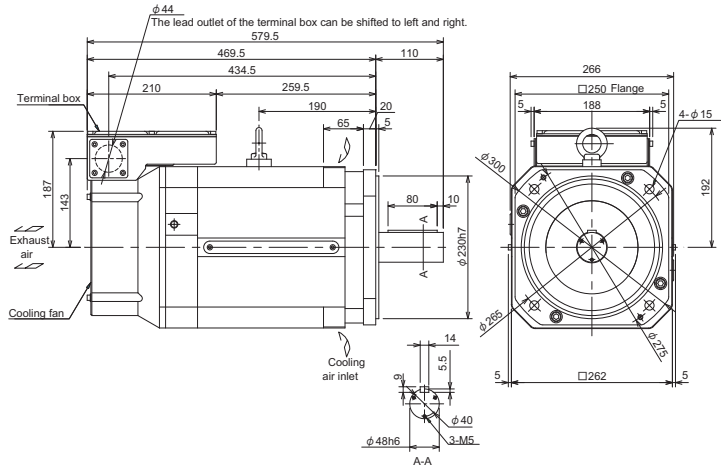
(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

Environmental conditions

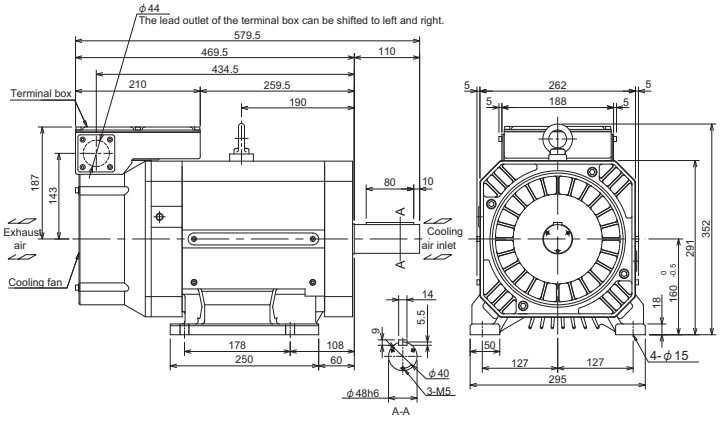
Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Outline dimension drawings [Unit : mm]

SJ-V18.5-04ZT with standard flange



SJ-V18.5-04ZT with standard legs



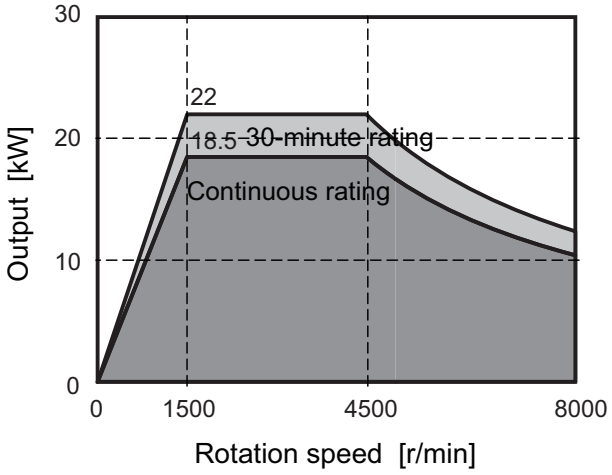
Base rotation speed 1500r/min series

SJ-V22-01ZT

Specifications

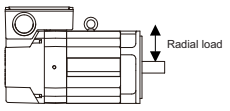
Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-D-SP-240
	2-axis type	-
	Multi axis integrated type	-
	Regenerative resistor type	-
Output capacity[kW]	Continuous rated output	18.5
	Short time rated output	22 (30-minute rating)
	Standard output during acceleration/ deceleration	22
	Actual acceleration/deceleration output (*3)	26.4
Base rotation speed[r/min]		1500
Maximum rotation speed[r/min]		8000
Frame No.		B160
Continuous rated torque[N・m]		118
GD^2 [kg・m^2]		0.319
Inertia[kg・m^2]		0.08
Tolerable radial load(*2) [N]		2940
Cooling fan	Input voltage	3-phase 200V
	Maximum power consumption	80W
Degree of protection		IP44
Mass[kg]		135
Heat-resistant class		155(F)

Output characteristics



(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)



(Note) The load point is at the one-half of the shaft length.

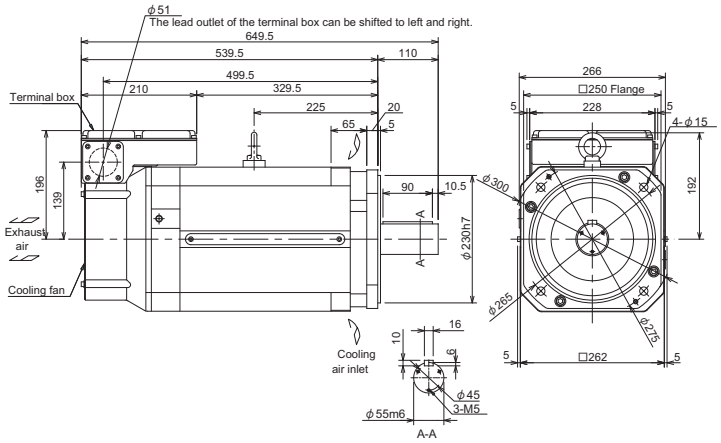
(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Outline dimension drawings [Unit : mm]

SJ-V22-01ZT with standard flange



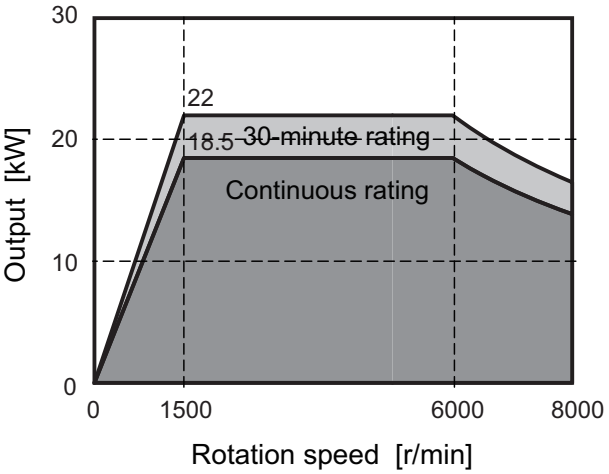
Base rotation speed 1500r/min series

SJ-V22-04ZT

Specifications

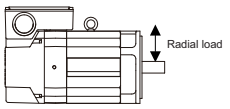
Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-D-SP-320
	2-axis type	-
	Multi axis integrated type	-
	Regenerative resistor type	-
Output capacity[kW]	Continuous rated output	18.5
	Short time rated output	22 (30-minute rating)
	Standard output during acceleration/ deceleration	22
	Actual acceleration/deceleration output (*3)	26.4
Base rotation speed[r/min]		1500
Maximum rotation speed[r/min]		8000
Frame No.		B160
Continuous rated torque[N・m]		118
GD^2 [kg・m^2]		0.319
Inertia[kg・m^2]		0.08
Tolerable radial load(*2) [N]		2940
Cooling fan	Input voltage	3-phase 200V
	Maximum power consumption	80W
Degree of protection		IP44
Mass[kg]		135
Heat-resistant class		155(F)

Output characteristics



(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)



(Note) The load point is at the one-half of the shaft length.

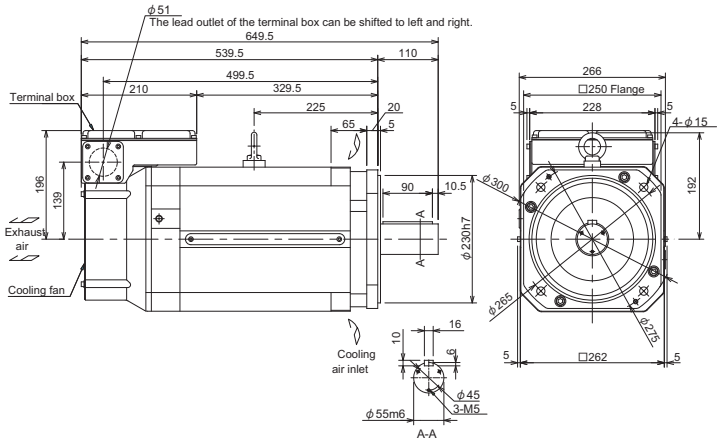
(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Outline dimension drawings [Unit : mm]

SJ-V22-04ZT with standard flange



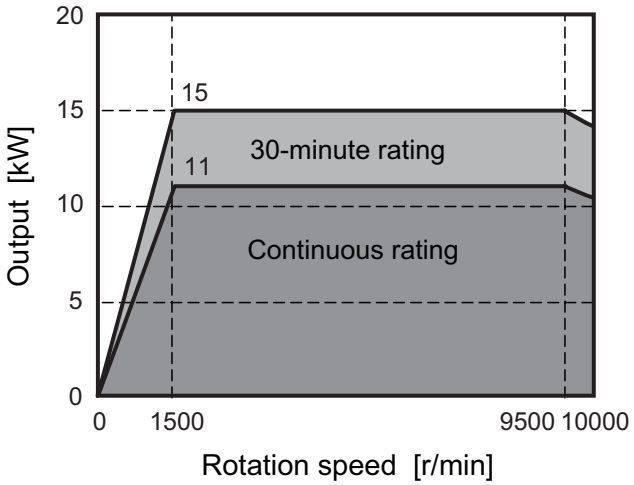
Base rotation speed 1500r/min series

SJ-V22-06ZT

Specifications

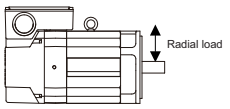
Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-D-SP-240
	2-axis type	-
	Multi axis integrated type	-
	Regenerative resistor type	-
Output capacity[kW]	Continuous rated output	11
	Short time rated output	15 (30-minute rating)
	Standard output during acceleration/ deceleration	11
	Actual acceleration/deceleration output (*3)	13.2
Base rotation speed[r/min]		1500
Maximum rotation speed[r/min]		10000
Frame No.		A160
Continuous rated torque[N・m]		70.0
GD^2 [kg・m^2]		0.23
Inertia[kg・m^2]		0.0575
Tolerable radial load(*2) [N]		2450
Cooling fan	Input voltage	3-phase 200V
	Maximum power consumption	63W
Degree of protection		IP44
Mass[kg]		110
Heat-resistant class		155(F)

Output characteristics



(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)



(Note) The load point is at the one-half of the shaft length.

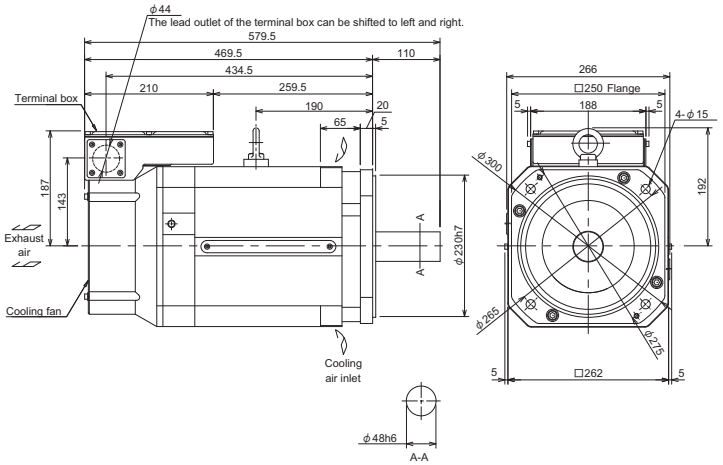
(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Outline dimension drawings [Unit : mm]

SJ-V22-06ZT with standard flange



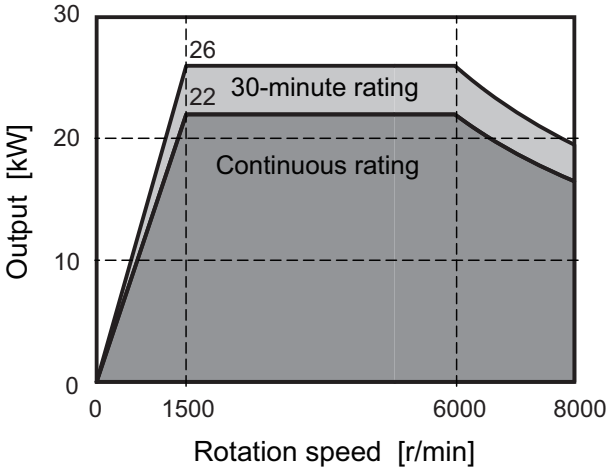
Base rotation speed 1500r/min series

SJ-V26-01ZT

Specifications

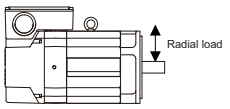
Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-D-SP-320
	2-axis type	-
	Multi axis integrated type	-
	Regenerative resistor type	-
Output capacity[kW]	Continuous rated output	22
	Short time rated output	26 (30-minute rating)
	Standard output during acceleration/ deceleration	26
	Actual acceleration/deceleration output (*3)	31.2
Base rotation speed[r/min]		1500
Maximum rotation speed[r/min]		8000
Frame No.		C160
Continuous rated torque[N・m]		140
GD^2 [kg・m^2]		0.37
Inertia[kg・m^2]		0.0925
Tolerable radial load(*2) [N]		2940
Cooling fan	Input voltage	3-phase 200V
	Maximum power consumption	63W
Degree of protection		IP44
Mass[kg]		155
Heat-resistant class		155(F)

Output characteristics



(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)



(Note) The load point is at the one-half of the shaft length.

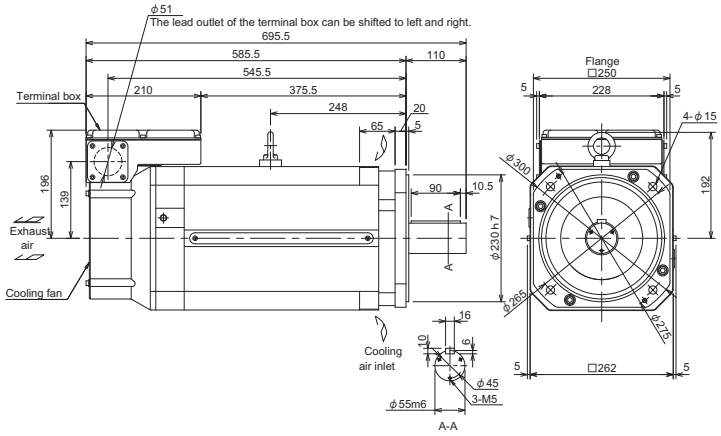
(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Outline dimension drawings [Unit : mm]

SJ-V26-01ZT with standard flange



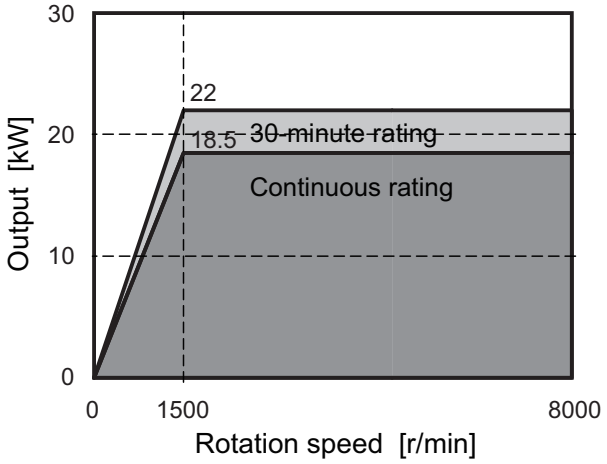
Base rotation speed 1500r/min series

SJ-V30-02ZT

Specifications

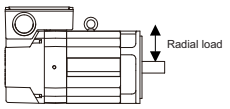
Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-D-SP-320
	2-axis type	-
	Multi axis integrated type	-
	Regenerative resistor type	-
Output capacity[kW]	Continuous rated output	18.5
	Short time rated output	22 (30-minute rating)
	Standard output during acceleration/ deceleration	22
	Actual acceleration/deceleration output (*3)	26.4
Base rotation speed[r/min]		1500
Maximum rotation speed[r/min]		8000
Frame No.		B160
Continuous rated torque[N・m]		118
GD^2 [kg・m^2]		0.32
Inertia[kg・m^2]		0.08
Tolerable radial load(*2) [N]		2940
Cooling fan	Input voltage	3-phase 200V
	Maximum power consumption	63W
Degree of protection		IP44
Mass[kg]		135
Heat-resistant class		155(F)

Output characteristics



(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)



(Note) The load point is at the one-half of the shaft length.

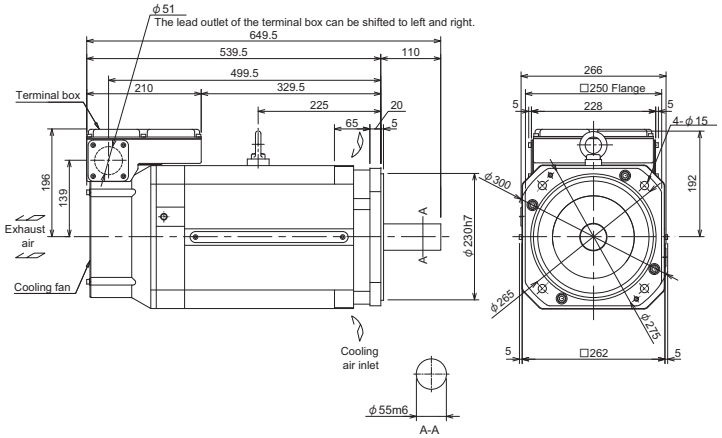
(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Outline dimension drawings [Unit : mm]

SJ-V30-02ZT with standard flange



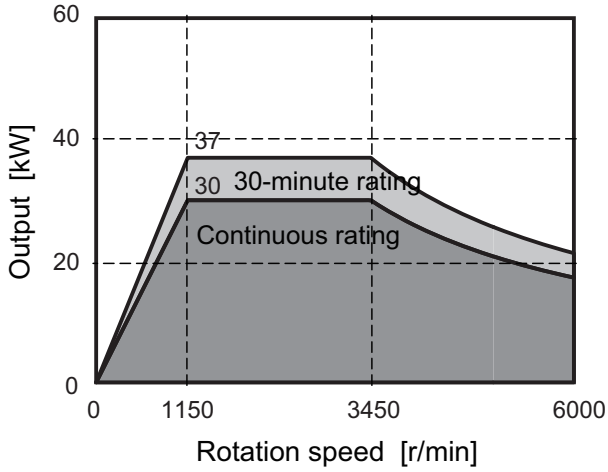
Base rotation speed 1500r/min series

SJ-V37-01ZT

Specifications

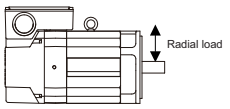
Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-D-SP-400
	2-axis type	-
	Multi axis integrated type	-
	Regenerative resistor type	-
Output capacity[kW]	Continuous rated output	30
	Short time rated output	37 (30-minute rating)
	Standard output during acceleration/ deceleration	37
	Actual acceleration/deceleration output (*3)	44.4
Base rotation speed[r/min]		1150
Maximum rotation speed[r/min]		6000
Frame No.		B180
Continuous rated torque[N・m]		249
GD^2 [kg・m^2]		1.36
Inertia[kg・m^2]		0.34
Tolerable radial load(*2) [N]		3920
Cooling fan	Input voltage	3-phase 200V
	Maximum power consumption	175W
Degree of protection		IP44
Mass[kg]		300
Heat-resistant class		155(F)

Output characteristics



(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)



(Note) The load point is at the one-half of the shaft length.

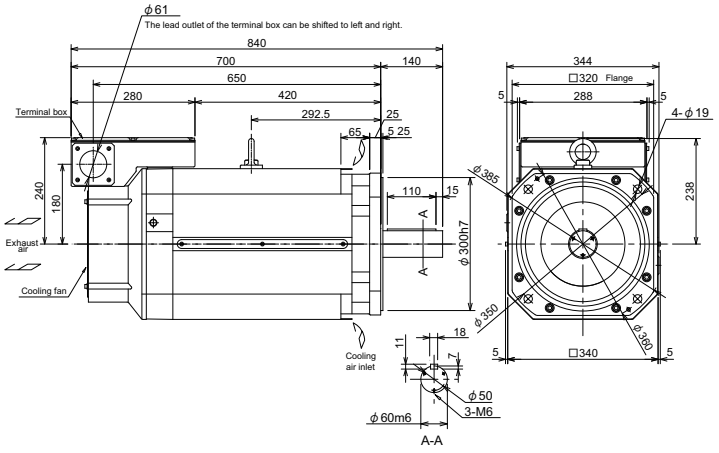
(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Outline dimension drawings [Unit : mm]

SJ-V37-01ZT with standard flange



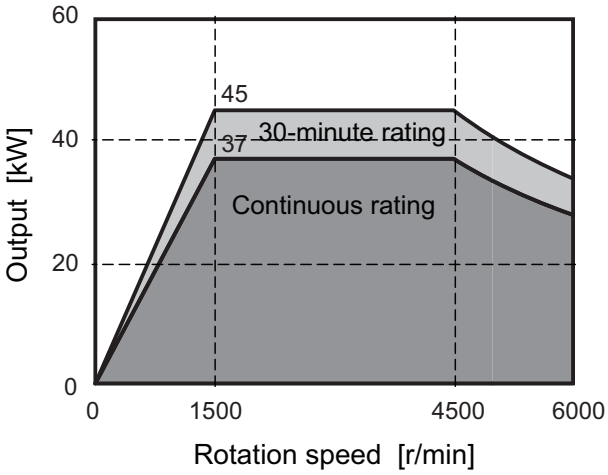
Base rotation speed 1500r/min series

SJ-V45-01ZT

Specifications

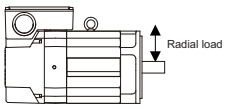
Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-D-SP-640
	2-axis type	-
	Multi axis integrated type	-
	Regenerative resistor type	-
Output capacity[kW]	Continuous rated output	37
	Short time rated output	45 (30-minute rating)
	Standard output during acceleration/ deceleration	45
	Actual acceleration/deceleration output (*3)	54
Base rotation speed[r/min]		1500
Maximum rotation speed[r/min]		6000
Frame No.		B180
Continuous rated torque[N・m]		236
GD^2 [kg・m^2]		1.36
Inertia[kg・m^2]		0.34
Tolerable radial load(*2) [N]		3920
Cooling fan	Input voltage	3-phase 200V
	Maximum power consumption	175W
Degree of protection		IP44
Mass[kg]		300
Heat-resistant class		155(F)

Output characteristics



(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)



(Note) The load point is at the one-half of the shaft length.

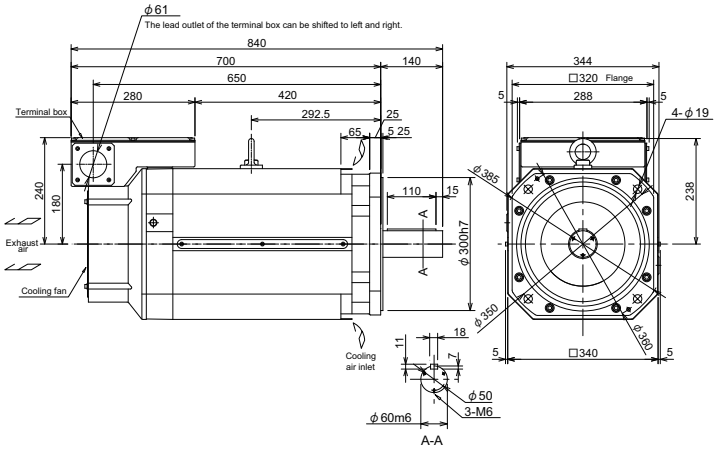
(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Outline dimension drawings [Unit : mm]

SJ-V45-01ZT with standard flange



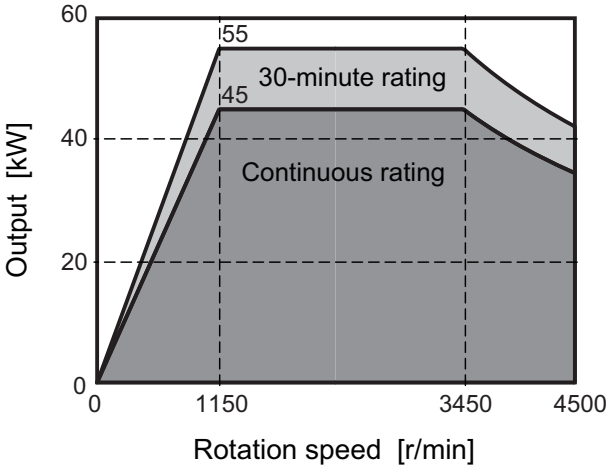
Base rotation speed 1150r/min series

SJ-V55-01ZT

Specifications

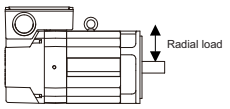
Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-D-SP-640
	2-axis type	-
	Multi axis integrated type	-
	Regenerative resistor type	-
Output capacity[kW]	Continuous rated output	45
	Short time rated output	55 (30-minute rating)
	Standard output during acceleration/ deceleration	55
	Actual acceleration/deceleration output (*3)	66
Base rotation speed[r/min]		1150
Maximum rotation speed[r/min]		4500
Frame No.		A225
Continuous rated torque[N・m]		374
GD^2 [kg・m^2]		3.39
Inertia[kg・m^2]		0.848
Tolerable radial load(*2) [N]		5880
Cooling fan	Input voltage	3-phase 200V
	Maximum power consumption	115W
Degree of protection		IP44
Mass[kg]		450
Heat-resistant class		155(F)

Output characteristics



(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)



(Note) The load point is at the one-half of the shaft length.

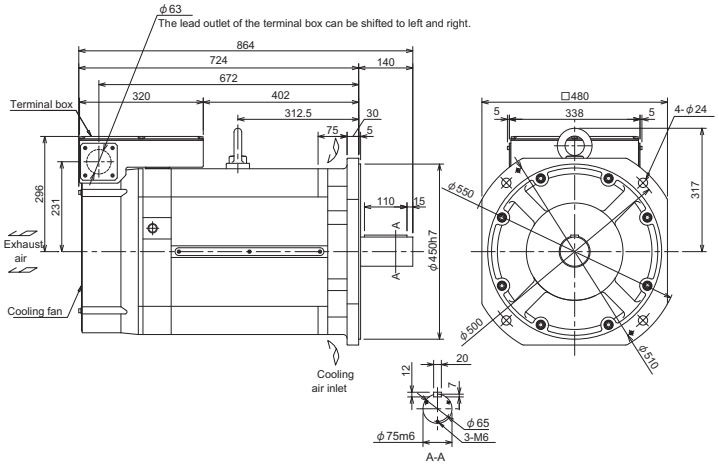
(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Outline dimension drawings [Unit : mm]

SJ-V55-01ZT with standard flange



Wide range constant output series

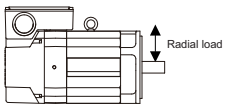
SJ-V11-01T

Specifications

Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-D-SP-160
	2-axis type	MDS-D-SP2-16080S (L) MDS-D-SP2-16080 (L)
	Multi axis integrated type	MDS-DM-SPV2/SPV2F-16080 MDS-DM-SPV3/SPV3F-16080
	Regenerative resistor type	-
Output capacity[kW]	Continuous rated output	3.7
	Short time rated output	5.5 (30-minute rating)
	Standard output during acceleration/deceleration	5.5
	Actual acceleration/deceleration output (*3)	6.6
Base rotation speed[r/min]		750
Maximum rotation speed[r/min]		6000
Frame No.		B112
Continuous rated torque[N・m]		47.1
GD^2 [kg・m^2]		0.12
Inertia[kg・m^2]		0.03
Tolerable radial load(*2) [N]		1960
Cooling fan	Input voltage	3-phase 200V
	Maximum power consumption	40W
Degree of protection		IP44
Mass[kg]		70
Heat-resistant class		155(F)

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

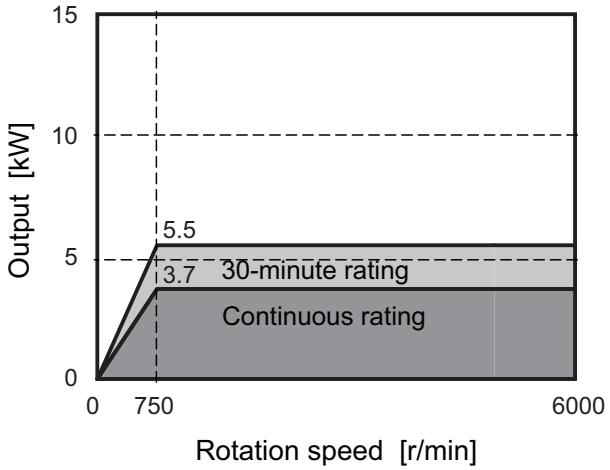
(*2)



(Note) The load point is at the one-half of the shaft length.

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

Output characteristics

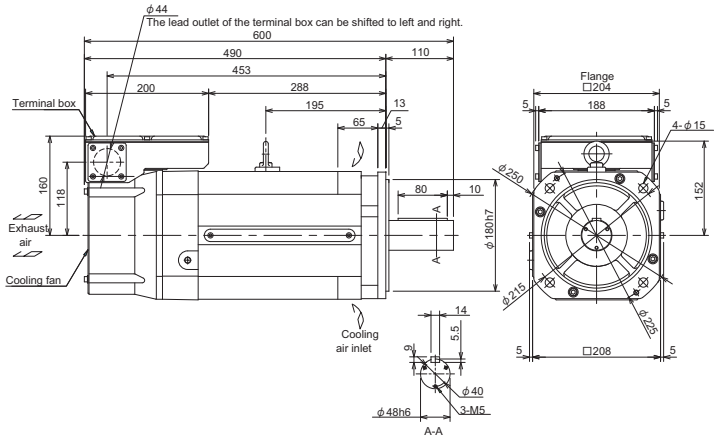


Environmental conditions

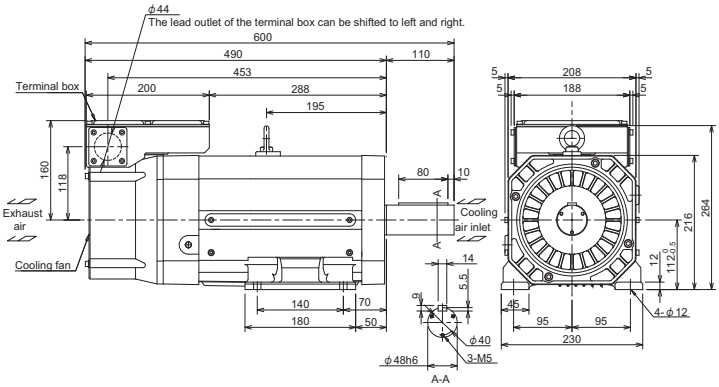
Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Outline dimension drawings [Unit : mm]

SJ-V11-01T with standard flange



SJ-V11-01T with standard legs



Wide range constant output series

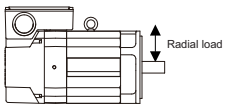
SJ-V11-09T

Specifications

Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-D-SP-160
	2-axis type	MDS-D-SP2-16080S (L) MDS-D-SP2-16080 (L)
	Multi axis integrated type	MDS-DM-SPV2/SPV2F-16080 MDS-DM-SPV3/SPV3F-16080
	Regenerative resistor type	-
Output capacity[kW]	Continuous rated output	5.5
	Short time rated output	7.5 (30-minute rating)
	Standard output during acceleration/ deceleration	7.5
	Actual acceleration/deceleration output (*3)	9
Base rotation speed[r/min]		750
Maximum rotation speed[r/min]		6000
Frame No.		A160
Continuous rated torque[N・m]		70.0
GD^2 [kg・m^2]		0.23
Inertia[kg・m^2]		0.0575
Tolerable radial load(*2) [N]		2940
Cooling fan	Input voltage	3-phase 200V
	Maximum power consumption	63W
Degree of protection		IP44
Mass[kg]		110
Heat-resistant class		155(F)

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

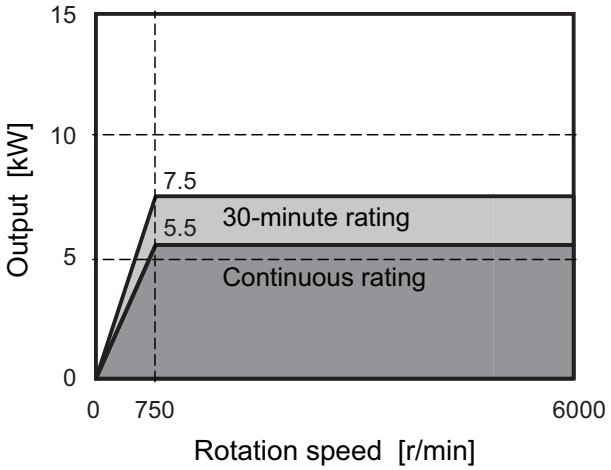
(*2)



(Note) The load point is at the one-half of the shaft length.

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

Output characteristics

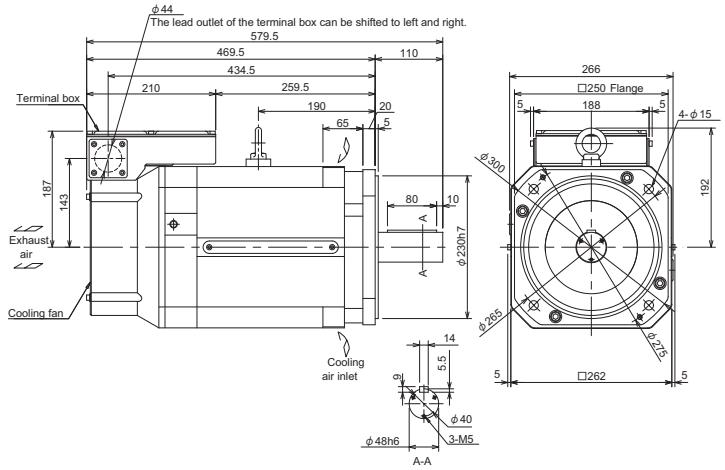


Environmental conditions

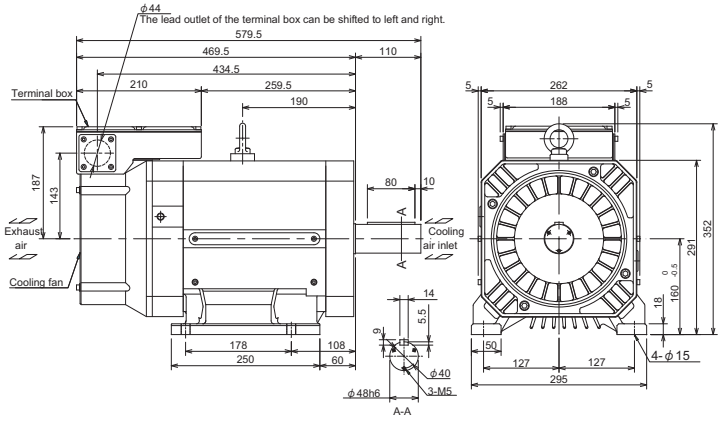
Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Outline dimension drawings [Unit : mm]

SJ-V11-09T with standard flange



SJ-V11-09T with standard legs



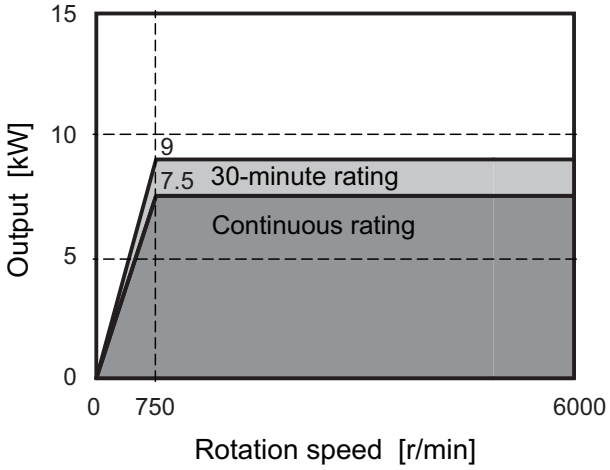
Wide range constant output series

SJ-V15-03T

Specifications

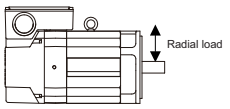
Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-D-SP-200
	2-axis type	-
	Multi axis integrated type	-
	Regenerative resistor type	-
Output capacity[kW]	Continuous rated output	7.5
	Short time rated output	9 (30-minute rating)
	Standard output during acceleration/ deceleration	9
	Actual acceleration/deceleration output (*3)	10.8
Base rotation speed[r/min]		750
Maximum rotation speed[r/min]		6000
Frame No.		A160
Continuous rated torque[N・m]		95.5
GD^2 [kg・m^2]		0.23
Inertia[kg・m^2]		0.0575
Tolerable radial load(*2) [N]		2940
Cooling fan	Input voltage	3-phase 200V
	Maximum power consumption	80W
Degree of protection		IP44
Mass[kg]		110
Heat-resistant class		155(F)

Output characteristics



(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)



(Note) The load point is at the one-half of the shaft length.

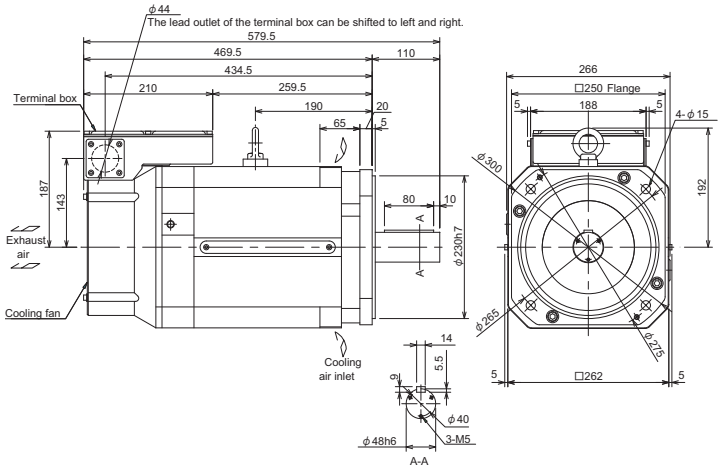
(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

Environmental conditions

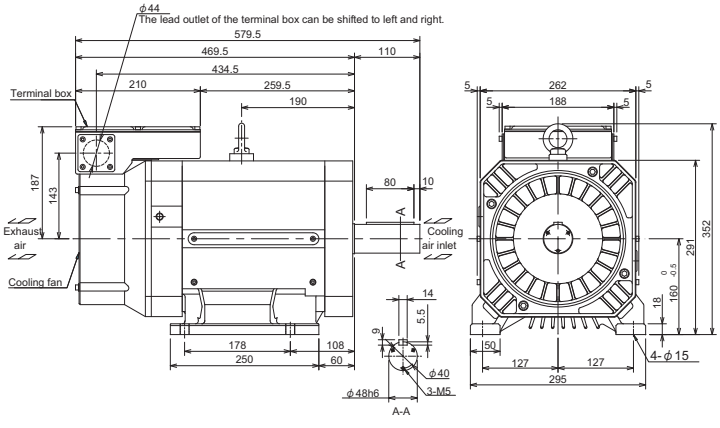
Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Outline dimension drawings [Unit : mm]

SJ-V15-03T with standard flange



SJ-V15-03T with standard legs



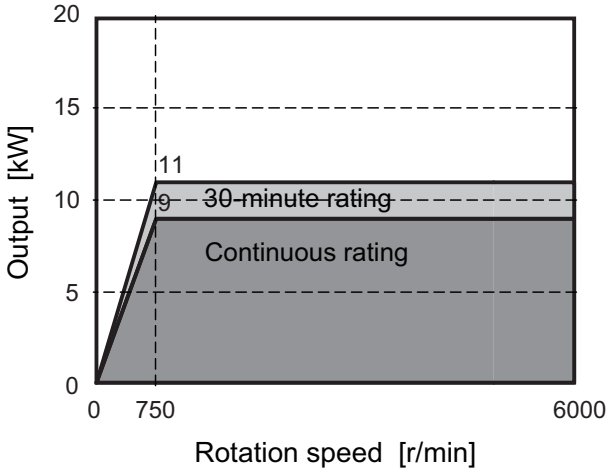
Wide range constant output series

SJ-V18.5-03T

Specifications

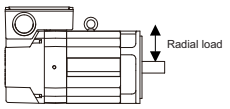
Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-D-SP-240
	2-axis type	-
	Multi axis integrated type	-
	Regenerative resistor type	-
Output capacity[kW]	Continuous rated output	9
	Short time rated output	11 (30-minute rating)
	Standard output during acceleration/ deceleration	11
	Actual acceleration/deceleration output (*3)	13.2
Base rotation speed[r/min]		750
Maximum rotation speed[r/min]		6000
Frame No.		B160
Continuous rated torque[N・m]		115
GD^2 [kg・m^2]		0.32
Inertia[kg・m^2]		0.08
Tolerable radial load(*2) [N]		2940
Cooling fan	Input voltage	3-phase 200V
	Maximum power consumption	80W
Degree of protection		IP44
Mass[kg]		135
Heat-resistant class		155(F)

Output characteristics



(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)



(Note) The load point is at the one-half of the shaft length.

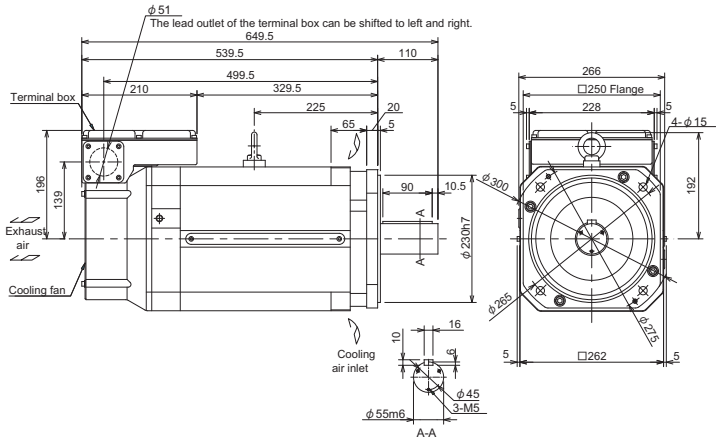
(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

Environmental conditions

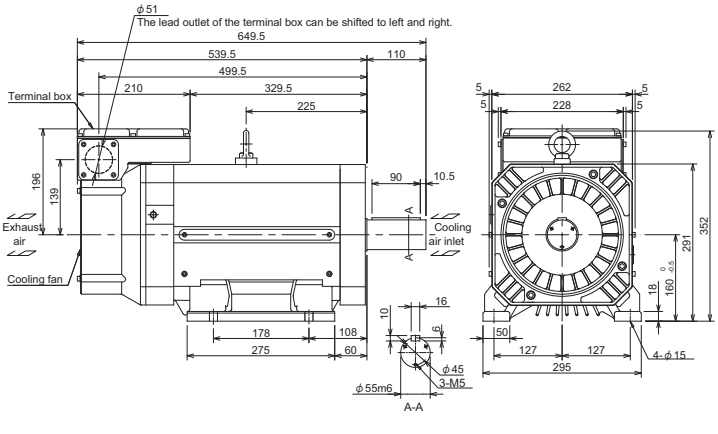
Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Outline dimension drawings [Unit : mm]

SJ-V18.5-03T with standard flange



SJ-V18.5-03T with standard legs



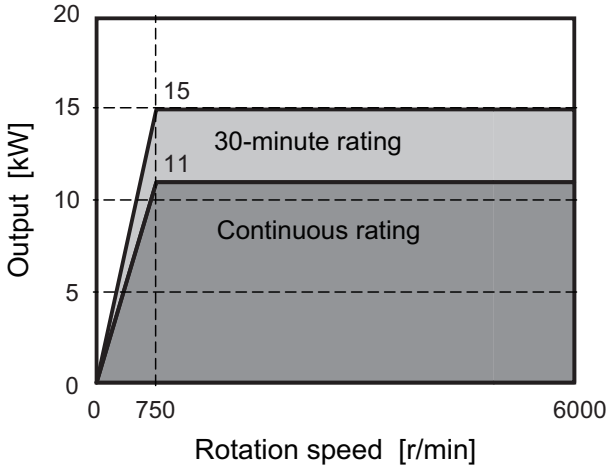
Wide range constant output series

SJ-V22-05T

Specifications

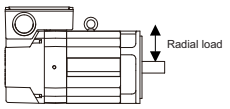
Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-D-SP-320
	2-axis type	-
	Multi axis integrated type	-
	Regenerative resistor type	-
Output capacity[kW]	Continuous rated output	11
	Short time rated output	15 (30-minute rating)
	Standard output during acceleration/ deceleration	15
	Actual acceleration/deceleration output (*3)	18
Base rotation speed[r/min]		750
Maximum rotation speed[r/min]		6000
Frame No.		B160
Continuous rated torque[N・m]		140
GD^2 [kg・m^2]		0.32
Inertia[kg・m^2]		0.08
Tolerable radial load(*2) [N]		2940
Cooling fan	Input voltage	3-phase 200V
	Maximum power consumption	63W
Degree of protection		IP44
Mass[kg]		135
Heat-resistant class		155(F)

Output characteristics



(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)



(Note) The load point is at the one-half of the shaft length.

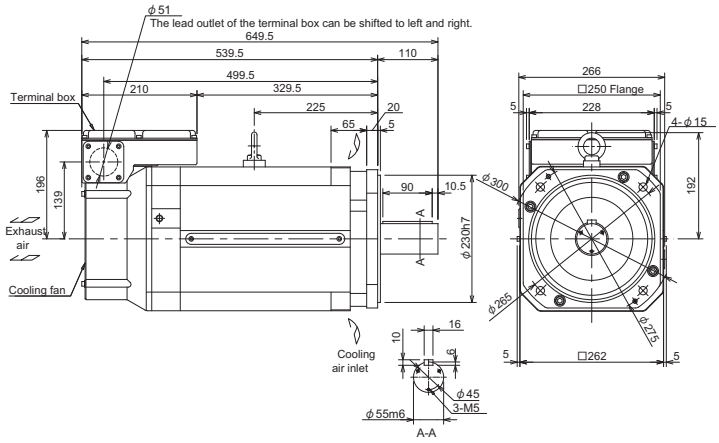
(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

Environmental conditions

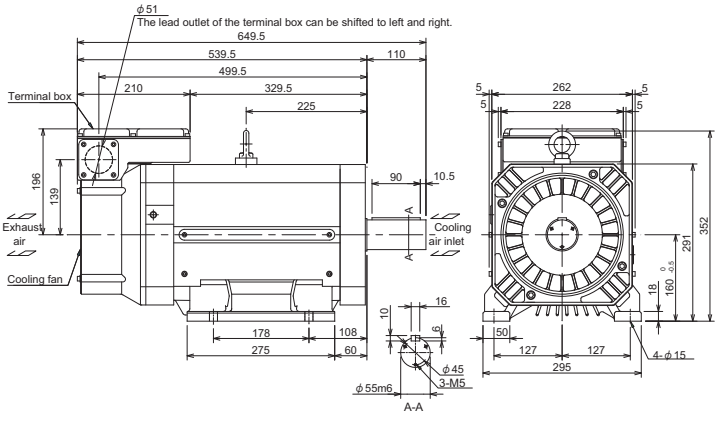
Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Outline dimension drawings [Unit : mm]

SJ-V22-05T with standard flange



SJ-V22-05T with standard legs



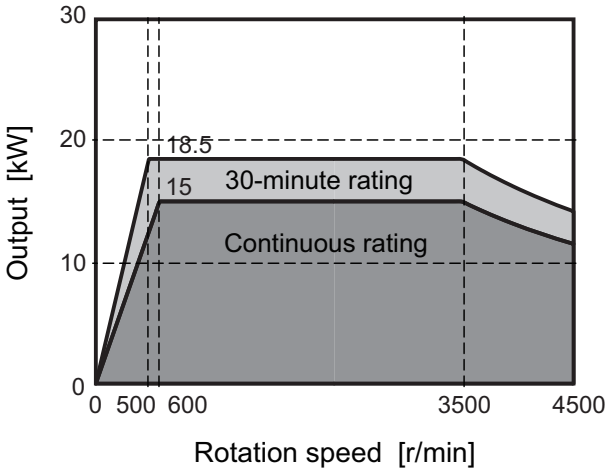
Wide range constant output series

SJ-V22-09T

Specifications

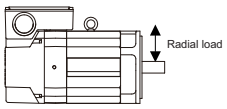
Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-D-SP-320
	2-axis type	-
	Multi axis integrated type	-
	Regenerative resistor type	-
Output capacity[kW]	Continuous rated output	15
	Short time rated output	18.5 (30-minute rating)
	Standard output during acceleration/ deceleration	18.5
	Actual acceleration/deceleration output (*3)	22.2
Base rotation speed	Continuous rating[r/min]	600
	Short time rating[r/min]	500
Maximum rotation speed[r/min]		4500
Frame No.		A180
Continuous rated torque[N・m]		239
GD^2 [kg・m^2]		1.23
Inertia[kg・m^2]		0.31
Tolerable radial load(*2) [N]		3920
Cooling fan	Input voltage	3-phase 200V
	Maximum power consumption	175W
Degree of protection		IP44
Mass[kg]		280
Heat-resistant class		155(F)

Output characteristics



(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)



(Note) The load point is at the one-half of the shaft length.

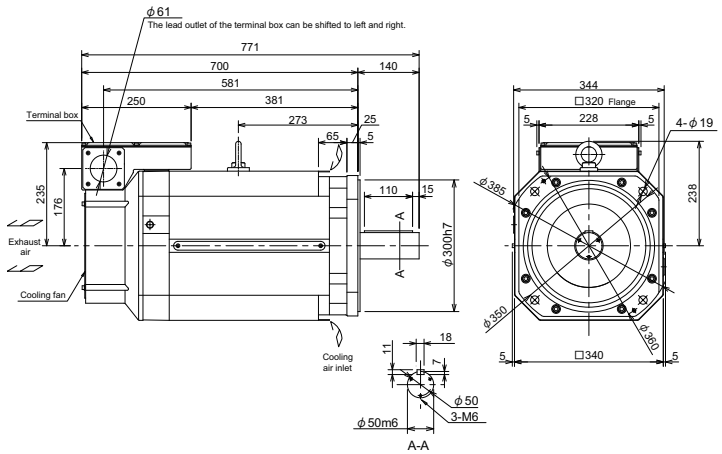
(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

Environmental conditions

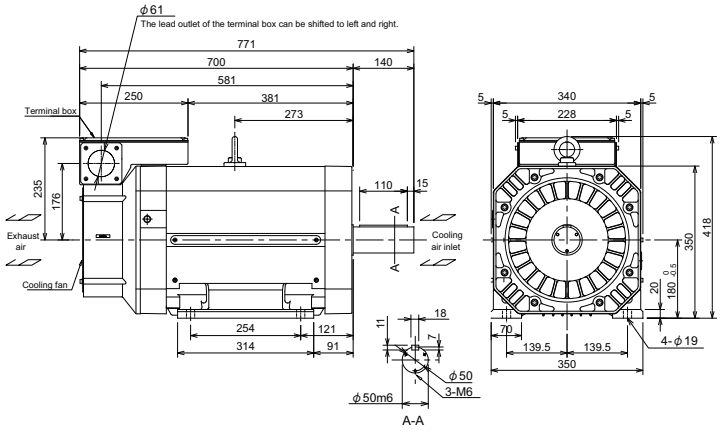
Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Outline dimension drawings [Unit : mm]

SJ-V22-09T with standard flange



SJ-V22-09T with standard legs



Wide range constant output series

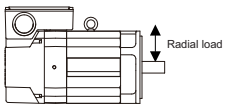
SJ-VK22-19ZT

Specifications

Item		Specifications	
Compatible drive unit (*1)	1-axis type	MDS-D-SP-320	
	2-axis type	-	
	Multi axis integrated type	-	
	Regenerative resistor type	-	
Output capacity[kW]	Continuous rated output	13	18.5
	Short time rated output	18.5 (15-minute rating)	22 (30-minute rating)
	Standard output during acceleration/deceleration	18.5	22
	Actual acceleration/deceleration output (*3)	22.2	26.4
Base rotation speed[r/min]		330	575
Maximum rotation speed[r/min]		750	6000
Frame No.		B180	
Continuous rated torque[N・m]		310	307.3
GD^2 [kg・m^2]		1.36	
Inertia[kg・m^2]		0.34	
Tolerable radial load(*2) [N]		3920	
Cooling fan	Input voltage	3-phase 200V	
	Maximum power consumption	175W	
Degree of protection		IP44	
Mass[kg]		300	
Heat-resistant class		155(F)	

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

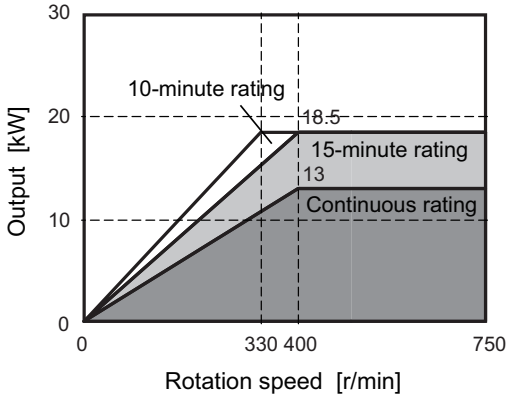
(*2)

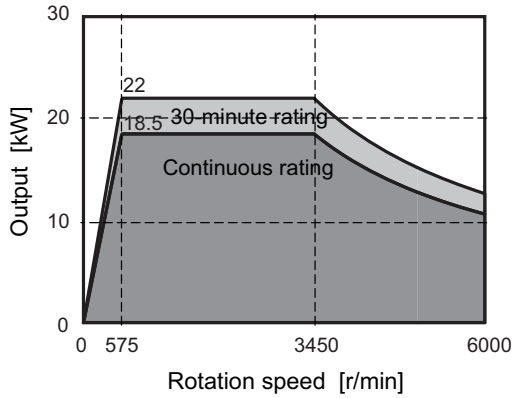


(Note) The load point is at the one-half of the shaft length.

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

Output characteristics



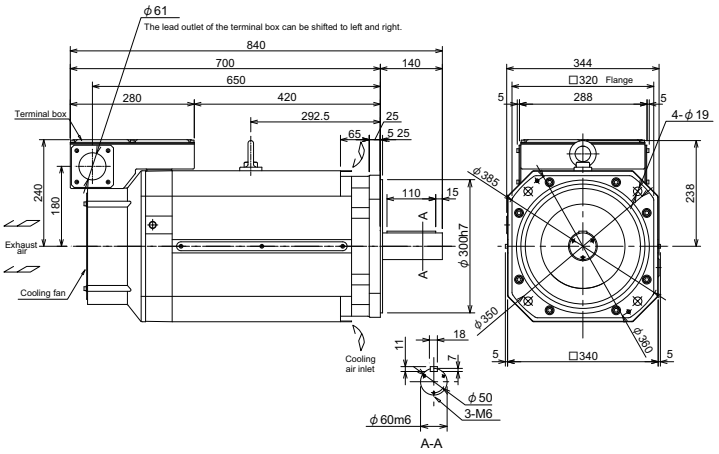


Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Outline dimension drawings [Unit : mm]

SJ-VK22-19ZT with standard flange



Low-inertia series

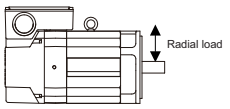
SJ-VL2.2-02ZT

Specifications

Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-D-SP-40
	2-axis type	MDS-D-SP2-4020 (L) MDS-D-SP2-4040S (L,M) MDS-D-SP2-4040 (L,M) MDS-D-SP2-8040 (M)
	Multi axis integrated type	-
	Regenerative resistor type	MDS-D-SPJ3-37/37NA (MAX:12000r/min)
Output capacity[kW]	Continuous rated output	1.5
	Short time rated output	2.2 (15-minute rating)
	Standard output during acceleration/ deceleration	2.2
	Actual acceleration/deceleration output (*3)	2.6
Base rotation speed[r/min]		3000
Maximum rotation speed[r/min]		15000
Frame No.		B71
Continuous rated torque[N・m]		4.77
GD^2 [kg・m^2]		0.0096
Inertia[kg・m^2]		0.0024
Tolerable radial load(*2) [N]		196
Cooling fan	Input voltage	Single-phase 200V
	Maximum power consumption	14W
Degree of protection		IP44
Mass[kg]		20
Heat-resistant class		155(F)

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)

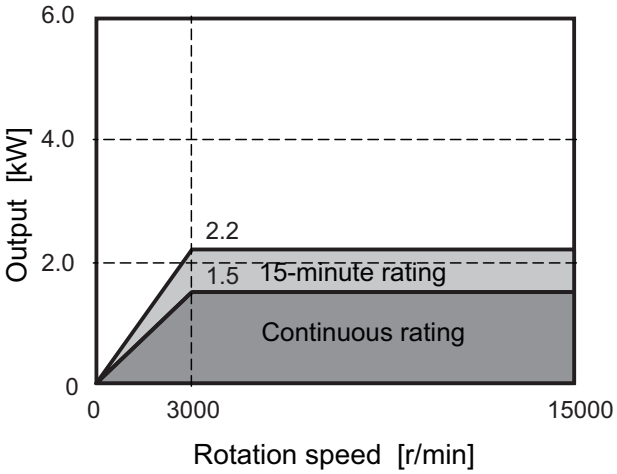


(Note) The load point is at the one-half of the shaft length.

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

(*4) The acceleration/deceleration frequency is limited by the regenerative resistor.

Output characteristics

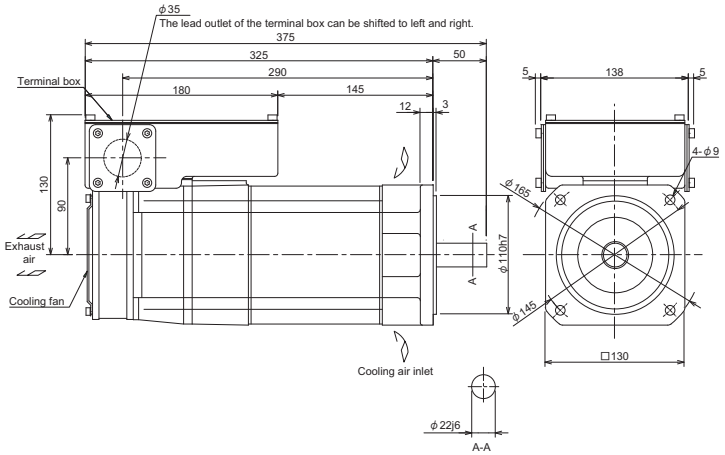


Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Outline dimension drawings [Unit : mm]

SJ-VL2.2-02ZT with standard flange



Low-inertia series

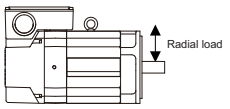
SJ-VL11-05FZT-S01

Specifications

Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-D-SP-160
	2-axis type	MDS-D-SP2-16080S (L) MDS-D-SP2-16080 (L)
	Multi axis integrated type	MDS-DM-SPV2/SPV2F-16080(MAX:15000r/min) MDS-DM-SPV3/SPV3F-16080(MAX:15000r/min)
	Regenerative resistor type	MDS-D-SPJ3-110/110NA(MAX:12000r/min)
Output capacity[kW]	Continuous rated output	1.5
	Short time rated output	3 (10-minute rating)
	Standard output during acceleration/deceleration	11
	Actual acceleration/deceleration output (*3)	13.2
Base rotation speed[r/min]		5000
Maximum rotation speed[r/min]		20000
Frame No.		B71
Continuous rated torque[N・m]		2.8
GD^2 [kg・m^2]		0.0096
Inertia[kg・m^2]		0.0024
Tolerable radial load(*2) [N]		98
Cooling fan	Input voltage	Single-phase 200V
	Maximum power consumption	14W
Degree of protection		IP44
Mass[kg]		20
Heat-resistant class		155(F)

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)

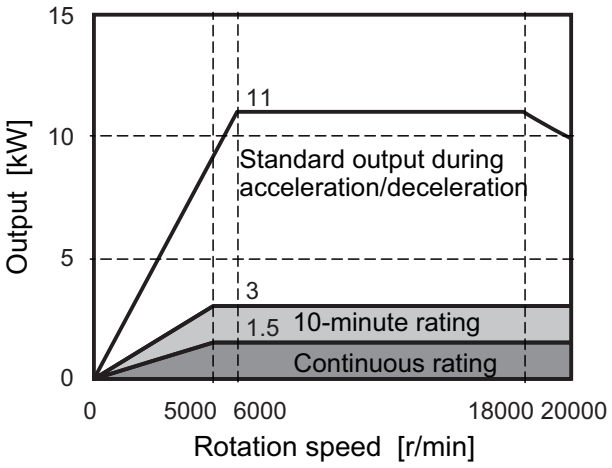


(Note) The load point is at the one-half of the shaft length.

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

(*4) The acceleration/deceleration frequency is limited by the regenerative resistor.

Output characteristics

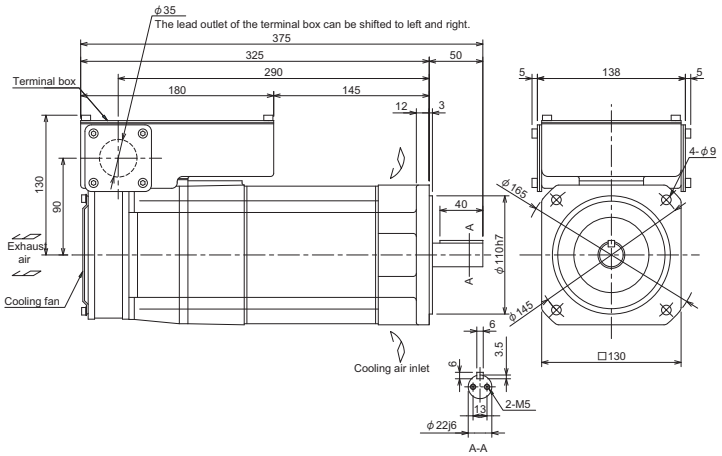


Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Outline dimension drawings [Unit : mm]

SJ-VL11-05FZT-S01 with standard flange



Low-inertia series

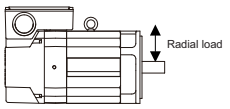
SJ-VL11-10FZT

Specifications

Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-D-SP-160
	2-axis type	MDS-D-SP2-16080S (L) MDS-D-SP2-16080 (L)
	Multi axis integrated type	MDS-DM-SPV2/SPV2F-16080 MDS-DM-SPV3/SPV3F-16080
	Regenerative resistor type	MDS-D-SPJ3-110/110NA (MAX:12000r/min)
Output capacity[kW]	Continuous rated output	2.2
	Short time rated output	3.7 (15-minute rating)
	Standard output during acceleration/deceleration	11
	Actual acceleration/deceleration output (*3)	13.2
Base rotation speed[r/min]		1700
Maximum rotation speed[r/min]		15000
Frame No.		D90
Continuous rated torque[N・m]		12.4
GD^2 [kg・m^2]		0.021
Inertia[kg・m^2]		0.00525
Tolerable radial load(*2) [N]		245
Cooling fan	Input voltage	Single-phase 200V
	Maximum power consumption	41W
Degree of protection		IP44
Mass[kg]		40
Heat-resistant class		155(F)

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)

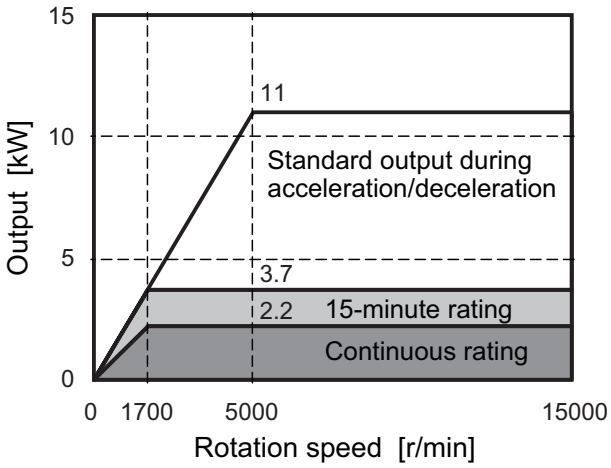


(Note) The load point is at the one-half of the shaft length.

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

(*4) The acceleration/deceleration frequency is limited by the regenerative resistor.

Output characteristics

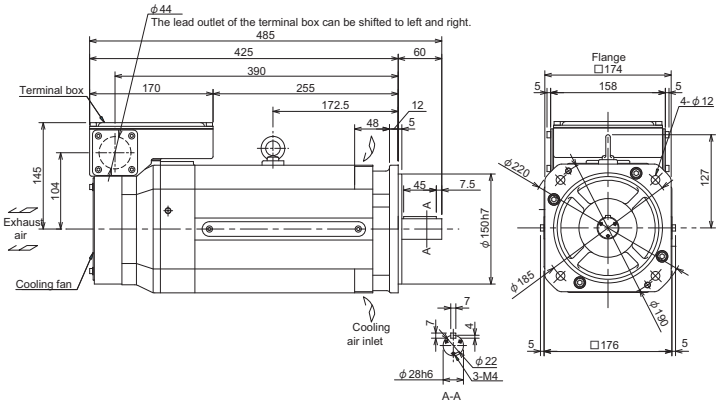


Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Outline dimension drawings [Unit : mm]

SJ-VL11-10FZT with standard flange



Low-inertia series

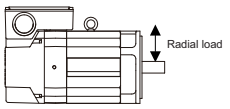
SJ-VL11-10FZT

Specifications

Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-D-SP-160
	2-axis type	-
	Multi axis integrated type	MDS-DM-SPV2/SPV2F-16080 MDS-DM-SPV3/SPV3F-16080
	Regenerative resistor type	-
Output capacity[kW]	Continuous rated output	3.7
	Short time rated output	5.5 (15-minute rating)
	Standard output during acceleration/deceleration	11
	Actual acceleration/deceleration output (*3)	13.2
Base rotation speed[r/min]		3000 (10-minute rating: 2500)
Maximum rotation speed[r/min]		15000
Frame No.		D90
Continuous rated torque[N・m]		11.8
GD^2 [kg・m^2]		0.021
Inertia[kg・m^2]		0.00525
Tolerable radial load(*2) [N]		245
Cooling fan	Input voltage	Single-phase 200V
	Maximum power consumption	41W
Degree of protection		IP44
Mass[kg]		40
Heat-resistant class		155(F)

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)

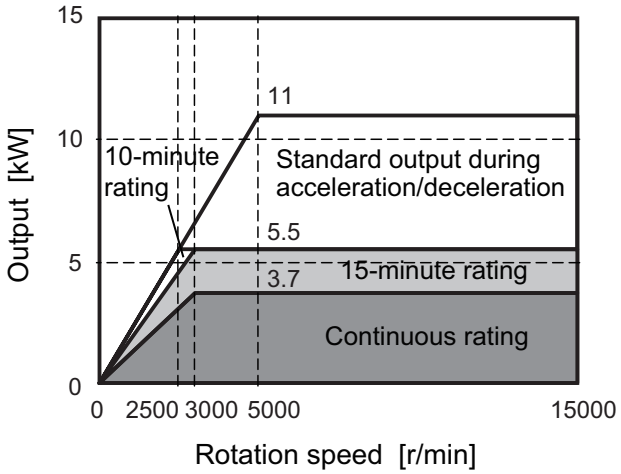


(Note) The load point is at the one-half of the shaft length.

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

(*4) The acceleration/deceleration frequency is limited by the regenerative resistor.

Output characteristics

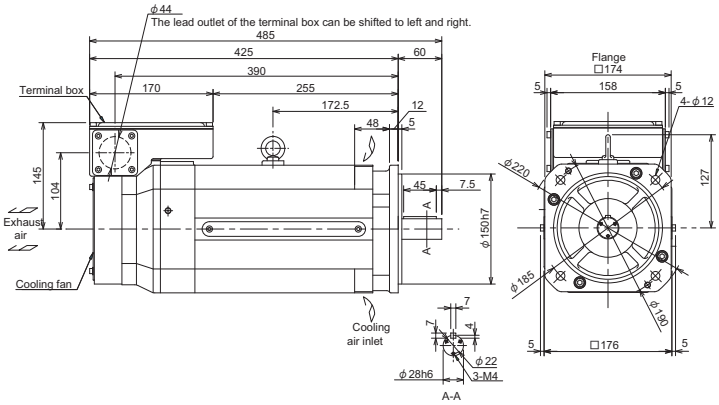


Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Outline dimension drawings [Unit : mm]

SJ-VL11-10FZT with standard flange



Low-inertia series

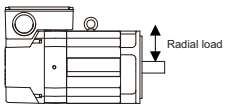
SJ-VL11-07ZT

Specifications

Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-D-SP-160
	2-axis type	MDS-D-SP2-16080S (L) MDS-D-SP2-16080 (L)
	Multi axis integrated type	MDS-DM-SPV2/SPV2F-16080 MDS-DM-SPV3/SPV3F-16080
	Regenerative resistor type	MDS-D-SPJ3-110/110NA
Output capacity[kW]	Continuous rated output	5.5
	Short time rated output	7.5 (30-minute rating)
	Standard output during acceleration/deceleration	11
	Actual acceleration/deceleration output (*3)	13.2
Base rotation speed[r/min]		1500
Maximum rotation speed[r/min]		12000
Frame No.		B112
Continuous rated torque[N・m]		35
GD^2 [kg・m^2]		0.072
Inertia[kg・m^2]		0.018
Tolerable radial load(*2) [N]		980
Cooling fan	Input voltage	3-phase 200V
	Maximum power consumption	70W
Degree of protection		IP44
Mass[kg]		70
Heat-resistant class		155(F)

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)

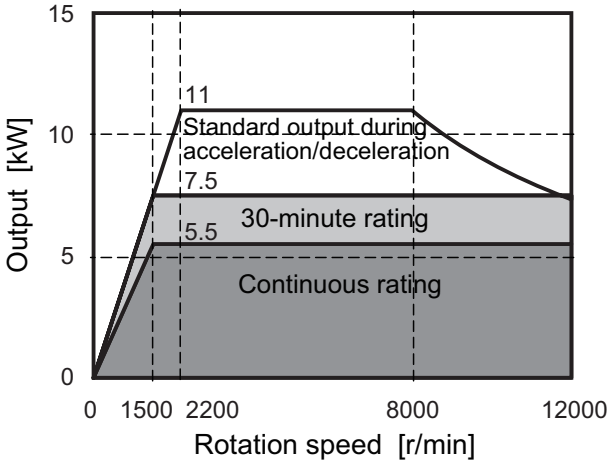


(Note) The load point is at the one-half of the shaft length.

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

(*4) The acceleration/deceleration frequency is limited by the regenerative resistor.

Output characteristics

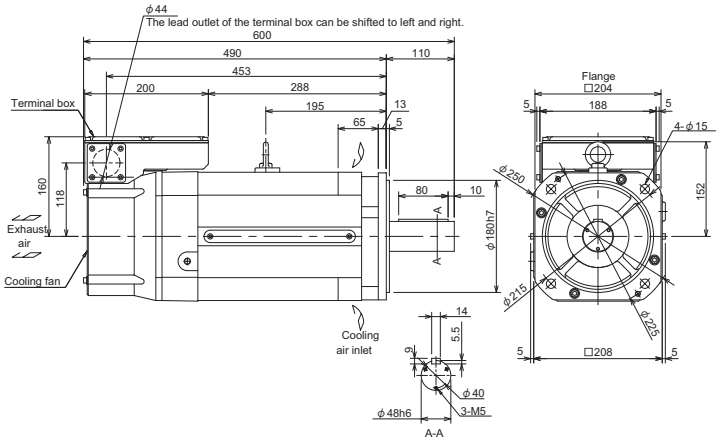


Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Outline dimension drawings [Unit : mm]

SJ-VL11-07ZT with standard flange



Low-inertia series

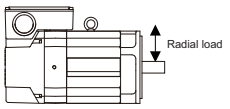
SJ-VL11-07ZT

Specifications

Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-D-SP-160
	2-axis type	MDS-D-SP2-16080S (L) MDS-D-SP2-16080 (L)
	Multi axis integrated type	MDS-DM-SPV2/SPV2F-16080 MDS-DM-SPV3/SPV3F-16080
	Regenerative resistor type	MDS-D-SPJ3-110/110NA
Output capacity[kW]	Continuous rated output	7.5
	Short time rated output	11 (15-minute rating)
	Standard output during acceleration/deceleration	11
	Actual acceleration/deceleration output (*3)	13.2
Base rotation speed[r/min]		2200
Maximum rotation speed[r/min]		12000
Frame No.		B112
Continuous rated torque[N・m]		32.6
GD^2 [kg・m^2]		0.072
Inertia[kg・m^2]		0.018
Tolerable radial load(*2) [N]		980
Cooling fan	Input voltage	3-phase 200V
	Maximum power consumption	70W
Degree of protection		IP44
Mass[kg]		70
Heat-resistant class		155(F)

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)

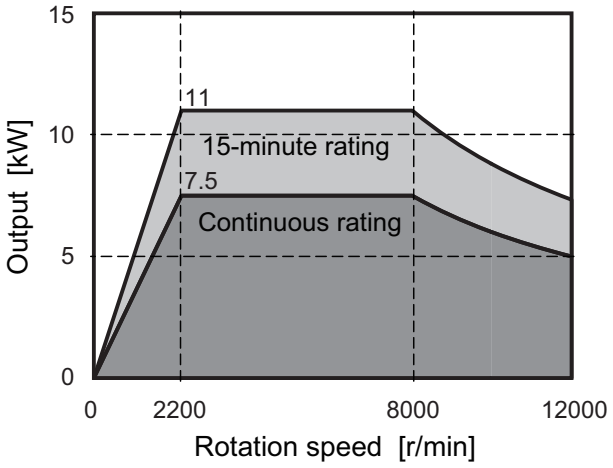


(Note) The load point is at the one-half of the shaft length.

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

(*4) The acceleration/deceleration frequency is limited by the regenerative resistor.

Output characteristics

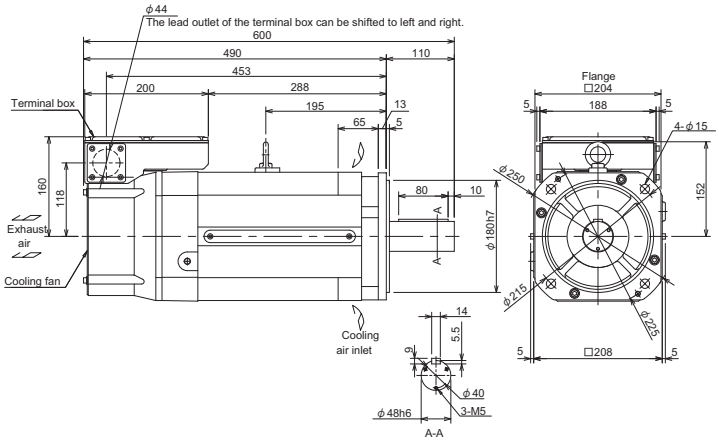


Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Outline dimension drawings [Unit : mm]

SJ-VL11-07ZT with standard flange



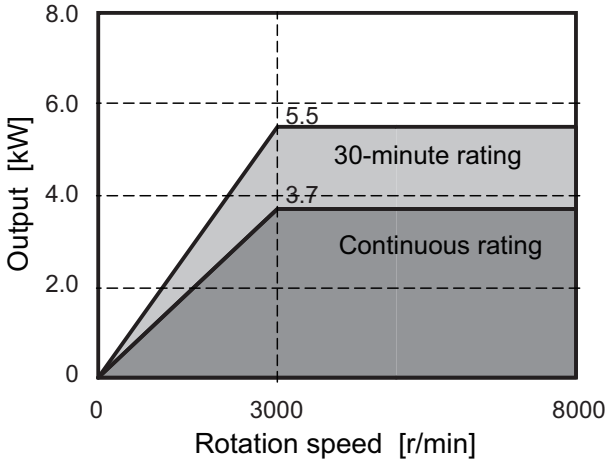
IPM series

SJ-PMF01830T-00

Specifications

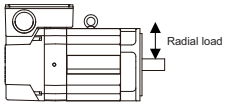
Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-D-SP-160
	2-axis type	-
	Multi axis integrated type	-
	Regenerative resistor type	-
Output capacity[kW]	Continuous rated output	3.7
	Short time rated output	5.5 (30-minute rating)
Base rotation speed[r/min]		3000
Maximum rotation speed[r/min]		8000
Frame No.		71
Continuous rated torque[N・m]		11.8
GD^2 [kg・m^2]		0.015
Inertia[kg・m^2]		0.004
Tolerable radial load(*2) [N]		1470
Cooling fan	Input voltage	3-phase 200V
	Maximum power consumption	38W
Degree of protection		IP44
Mass[kg]		23
Heat-resistant class		155(F)

Output characteristics



(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)



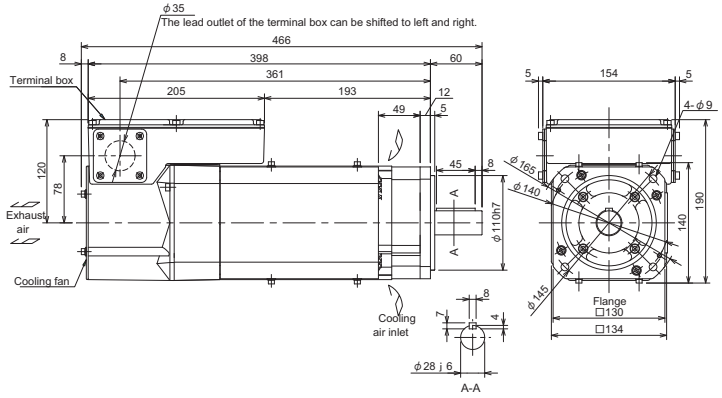
(Note) The load point is at the one-half of the shaft length.

Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Outline dimension drawings [Unit : mm]

SJ-PMF01830T-00 with standard flange



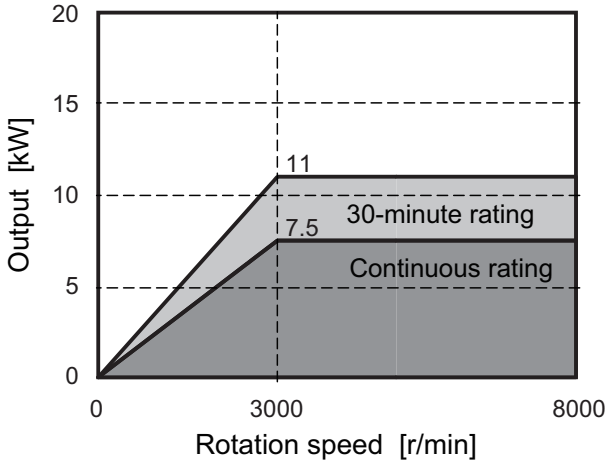
IPM series

SJ-PMF03530T-00

Specifications

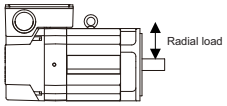
Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-D-SP-200
	2-axis type	-
	Multi axis integrated type	-
	Regenerative resistor type	-
Output capacity[kW]	Continuous rated output	7.5
	Short time rated output	11.0 (30-minute rating)
Base rotation speed[r/min]		3000
Maximum rotation speed[r/min]		8000
Frame No.		90
Continuous rated torque[N・m]		23.9
GD^2 [kg・m^2]		0.034
Inertia[kg・m^2]		0.009
Tolerable radial load(*2) [N]		1960
Cooling fan	Input voltage	3-phase 200V
	Maximum power consumption	32W
Degree of protection		IP44
Mass[kg]		35
Heat-resistant class		155(F)

Output characteristics



(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)



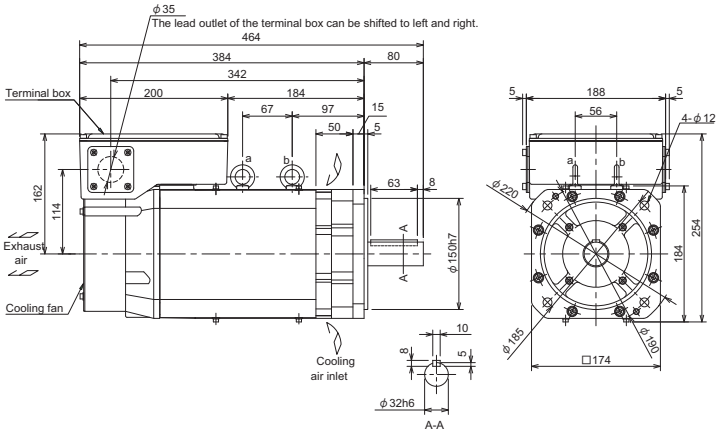
(Note) The load point is at the one-half of the shaft length.

Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Outline dimension drawings [Unit : mm]

SJ-PMF03530T-00 with standard flange



Base rotation speed 1500r/min series

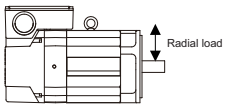
SJ-D3.7/100-01

Specifications

Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-D-SP-80
	2-axis type	MDS-D-SP2-8040 (L) MDS-D-SP2-16080S (M) MDS-D-SP2-8080 (L,M) MDS-D-SP2-16080 (M)
	Multi axis integrated type	-
	Regenerative resistor type	MDS-D-SPJ3-37/37NA
Output capacity[kW]	Continuous rated output	2.2
	Short time rated output	3.7 (15-minute rating)
	Standard output during acceleration/deceleration	3.7
	Actual acceleration/deceleration output (*3)	4.4
Base rotation speed[r/min]		1500
Maximum rotation speed[r/min]		10000
Frame No.		B90
Continuous rated torque[N・m]		14.0
GD^2 [kg・m^2]		0.030
Inertia[kg・m^2]		0.0074
Tolerable radial load(*2) [N]		980
Cooling fan	Input voltage	3-phase 200V
	Maximum power consumption	38W
Degree of protection		IP54 (The shaft-through portion is excluded.)
Mass[kg]		26
Heat-resistant class		155(F)

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

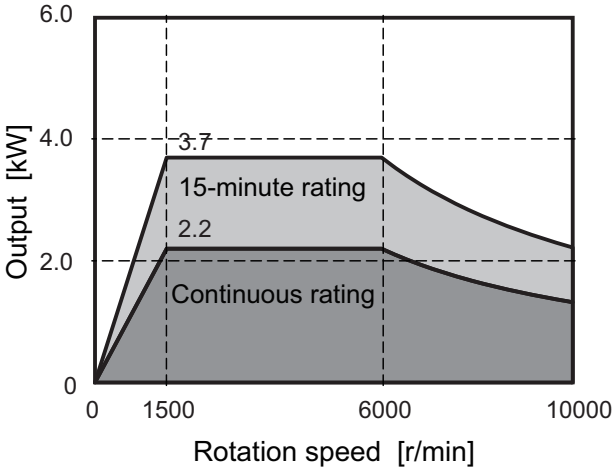
(*2)



(Note) The load point is at the one-half of the shaft length.

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

Output characteristics

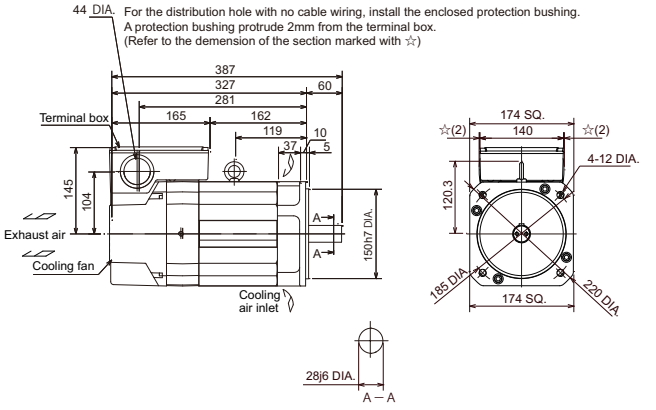


Environmental conditions

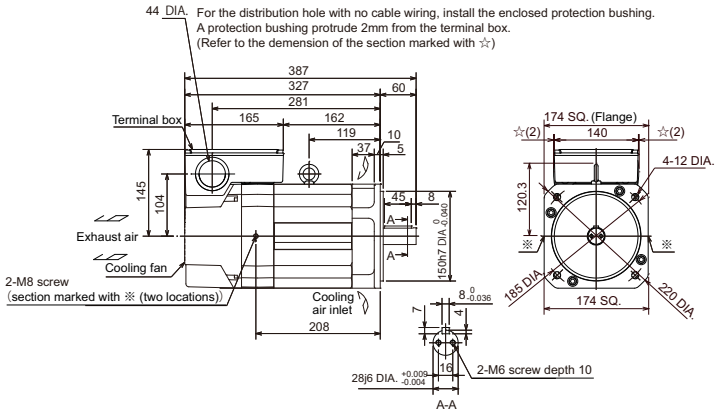
Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Outline dimension drawings [Unit : mm]

SJ-D3.7/100-01 with standard flange



SJ-D3.7/100-01-C with standard flange (with key)



Base rotation speed 1500r/min series

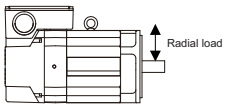
SJ-D5.5/100-01

Specifications

Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-D-SP-80
	2-axis type	MDS-D-SP2-8040 (L) MDS-D-SP2-16080S (M) MDS-D-SP2-8080 (L,M) MDS-D-SP2-16080 (M)
	Multi axis integrated type	MDS-DM-SPV2/SPV2F-10080 MDS-DM-SPV3/SPV3F-10080
	Regenerative resistor type	MDS-D-SPJ3-55/55NA
Output capacity[kW]	Continuous rated output	3.7
	Short time rated output	3.7 (15-minute rating)
	Standard output during acceleration/deceleration	5.5
	Actual acceleration/deceleration output (*3)	6.6
Base rotation speed[r/min]		1500
Maximum rotation speed[r/min]		10000
Frame No.		D90
Continuous rated torque[N・m]		23.6
GD^2 [kg・m^2]		0.053
Inertia[kg・m^2]		0.013
Tolerable radial load(*2) [N]		1470
Cooling fan	Input voltage	3-phase 200V
	Maximum power consumption	38W
Degree of protection		IP54 (The shaft-through portion is excluded.)
Mass[kg]		39
Heat-resistant class		155(F)

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)



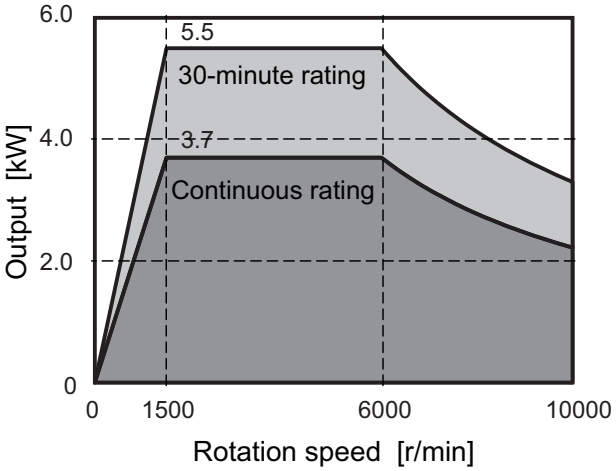
(Note) The load point is at the one-half of the shaft length.

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

Environmental conditions

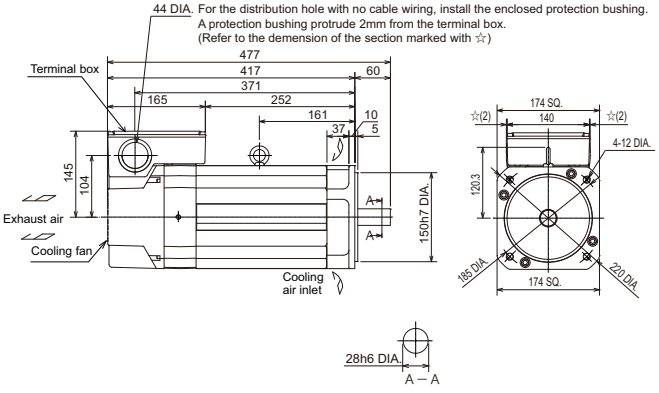
Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Output characteristics

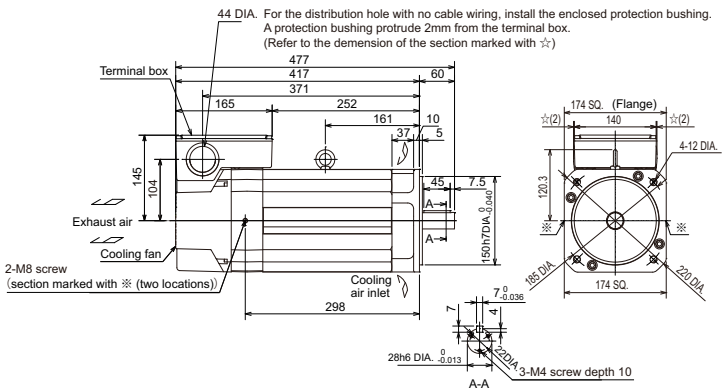


Outline dimension drawings [Unit : mm]

SJ-D5.5/100-01 with standard flange



SJ-D5.5/100-01-C with standard flange (with key)



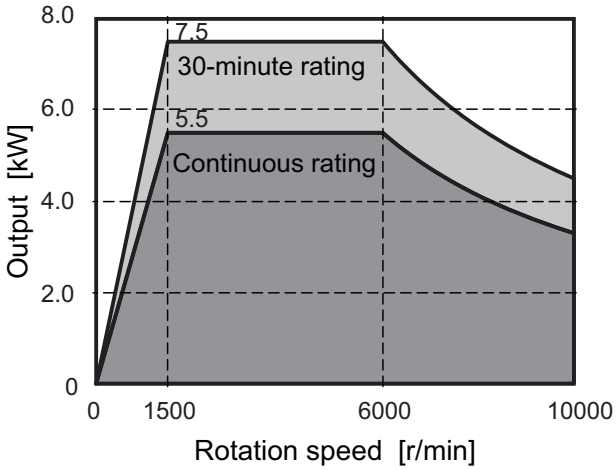
Base rotation speed 1500r/min series

SJ-D7.5/100-01

Specifications

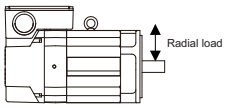
Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-D-SP-160
	2-axis type	MDS-D-SP2-16080S (L) MDS-D-SP2-16080 (L)
	Multi axis integrated type	MDS-DM-SPV2/SPV2F-10080 MDS-DM-SPV3/SPV3F-10080
	Regenerative resistor type	MDS-D-SPJ3-75/75NA
Output capacity[kW]	Continuous rated output	5.5
	Short time rated output	7.5 (15-minute rating)
	Standard output during acceleration/deceleration	7.5
	Actual acceleration/deceleration output (*3)	9
Base rotation speed[r/min]		1500
Maximum rotation speed[r/min]		10000
Frame No.		A112
Continuous rated torque[N・m]		35.0
GD^2 [kg・m^2]		0.094
Inertia[kg・m^2]		0.023
Tolerable radial load(*2) [N]		1960
Cooling fan	Input voltage	3-phase 200V
	Maximum power consumption	50W
Degree of protection		IP54 (The shaft-through portion is excluded.)
Mass[kg]		53
Heat-resistant class		155(F)

Output characteristics



(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)



(Note) The load point is at the one-half of the shaft length.

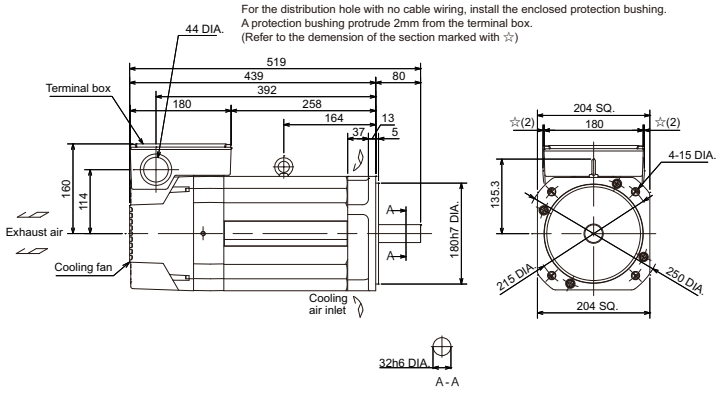
(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

Environmental conditions

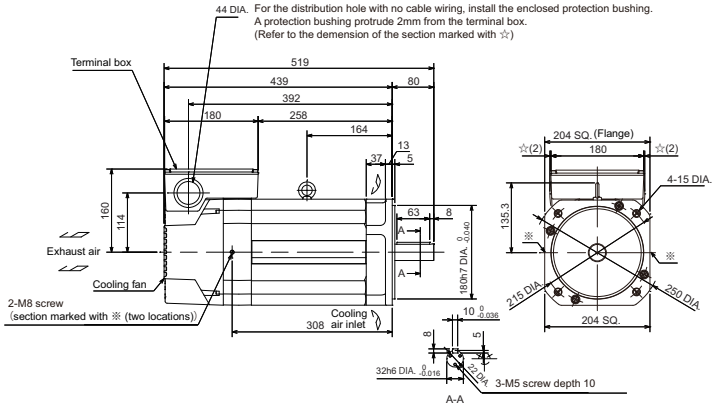
Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Outline dimension drawings [Unit : mm]

SJ-D7.5/100-01 with standard flange



SJ-D7.5/100-01-C with standard flange (with key)



Base rotation speed 1500r/min series

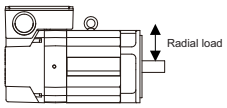
SJ-D11/80-01

Specifications

Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-D-SP-160
	2-axis type	MDS-D-SP2-16080S MDS-D-SP2-16080
	Multi axis integrated type	MDS-DM-SPV2/SPV2F-16080 (L) MDS-DM-SPV3/SPV3F-16080 (L)
	Regenerative resistor type	MDS-D-SPJ3-110/110NA
Output capacity[kW]	Continuous rated output	7.5
	Short time rated output	11 (30-minute rating)
	Standard output during acceleration/deceleration	11
	Actual acceleration/deceleration output (*3)	13.2
Base rotation speed[r/min]		1500
Maximum rotation speed[r/min]		8000
Frame No.		B112
Continuous rated torque[N・m]		47.7
GD^2 [kg・m^2]		0.122
Inertia[kg・m^2]		0.031
Tolerable radial load(*2) [N]		1960
Cooling fan	Input voltage	3-phase 200V
	Maximum power consumption	50W
Degree of protection		IP54 (The shaft-through portion is excluded.)
Mass[kg]		64
Heat-resistant class		155(F)

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)



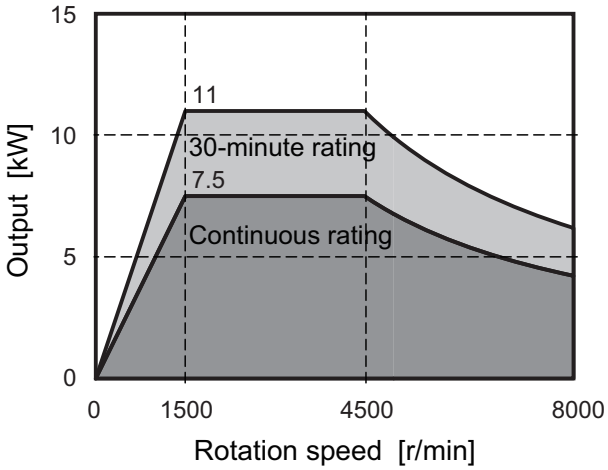
(Note) The load point is at the one-half of the shaft length.

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

Environmental conditions

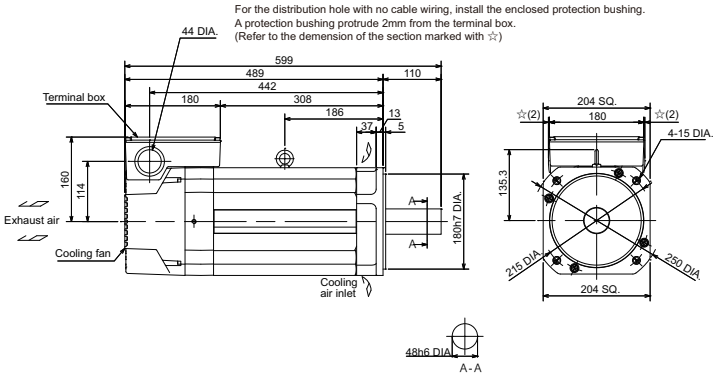
Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Output characteristics

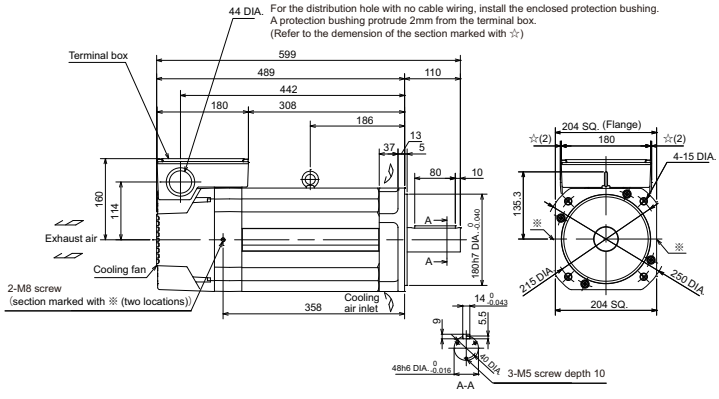


Outline dimension drawings [Unit : mm]

SJ-D11/80-01 with standard flange



SJ-D11/80-01-C with standard flange (with key)



Base rotation speed 1500r/min series

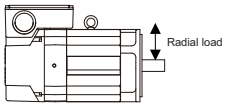
SJ-DJ5.5/100-01

Specifications

Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-D-SP-80
	2-axis type	MDS-D-SP2-8040 (L) MDS-D-SP2-16080S (M) MDS-D-SP2-8080 (L,M) MDS-D-SP2-16080 (M)
	Multi axis integrated type	MDS-DM-SPV2/SPV2F-10080 MDS-DM-SPV3/SPV3F-10080
	Regenerative resistor type	MDS-D-SPJ3-55/55NA
Output capacity[kW]	Continuous rated output	3.7
	Short time rated output	5.5 (25%ED rating)
	Standard output during acceleration/deceleration	5.5
	Actual acceleration/deceleration output (*3)	6.6
Base rotation speed	Continuous rating[r/min]	2000
	Short time rating[r/min]	1500
Maximum rotation speed[r/min]		10000
Frame No.		B90
Continuous rated torque[N・m]		17.7
GD^2 [kg・m^2]		0.030
Inertia[kg・m^2]		0.0074
Tolerable radial load(*2) [N]		980
Cooling fan	Input voltage	3-phase 200V
	Maximum power consumption	38W
Degree of protection		IP54 (The shaft-through portion is excluded.)
Mass[kg]		26
Heat-resistant class		155(F)

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

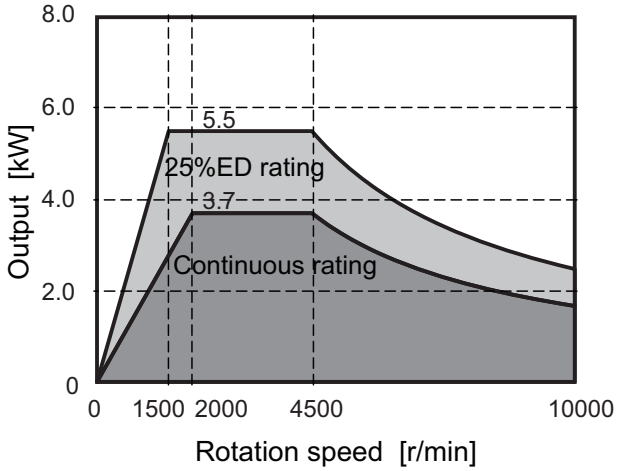
(*2)



(Note) The load point is at the one-half of the shaft length.

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

Output characteristics

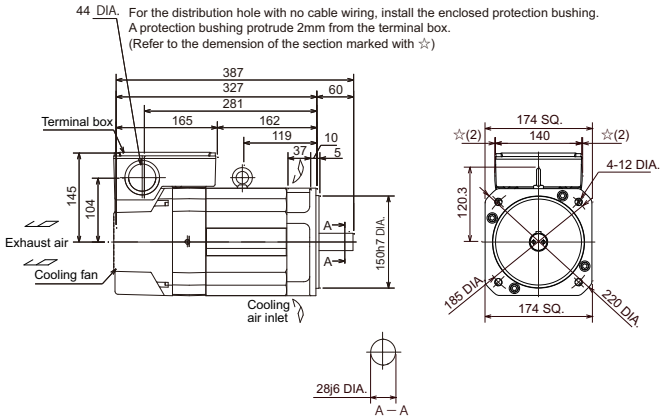


Environmental conditions

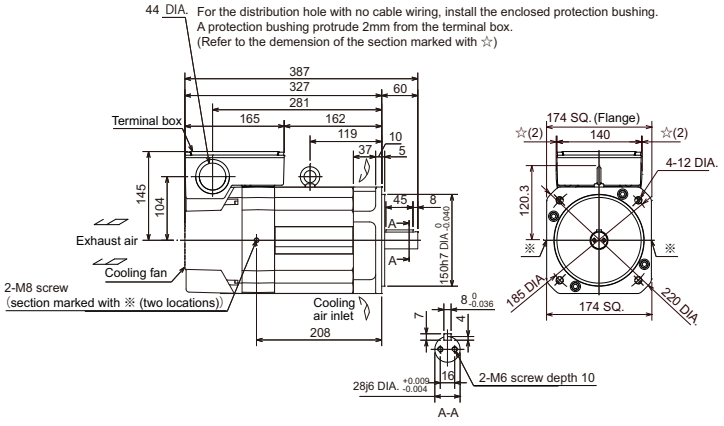
Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Outline dimension drawings [Unit : mm]

SJ-DJ5.5/100-01 with standard flange



SJ-DJ5.5/100-01-C with standard flange (with key)



Base rotation speed 1500r/min series

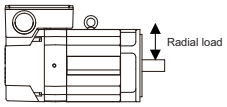
SJ-DJ7.5/100-01

Specifications

Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-D-SP-160
	2-axis type	MDS-D-SP2-16080S (L) MDS-D-SP2-16080 (L)
	Multi axis integrated type	MDS-DM-SPV2/SPV2F-10080 MDS-DM-SPV3/SPV3F-10080
	Regenerative resistor type	MDS-D-SPJ3-75/75NA
Output capacity[kW]	Continuous rated output	5.5
	Short time rated output	7.5 (15-minute rating)
	Standard output during acceleration/deceleration	7.5
	Actual acceleration/deceleration output (*3)	9
Base rotation speed	Continuous rating[r/min]	2000
	Short time rating[r/min]]	1500
Maximum rotation speed[r/min]		10000
Frame No.		D90
Continuous rated torque[N・m]		26.3
GD^2 [kg・m^2]		0.053
Inertia[kg・m^2]		0.013
Tolerable radial load(*2) [N]		1470
Cooling fan	Input voltage	3-phase 200V
	Maximum power consumption	38W
Degree of protection		IP54 (The shaft-through portion is excluded.)
Mass[kg]		39
Heat-resistant class		155(F)

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

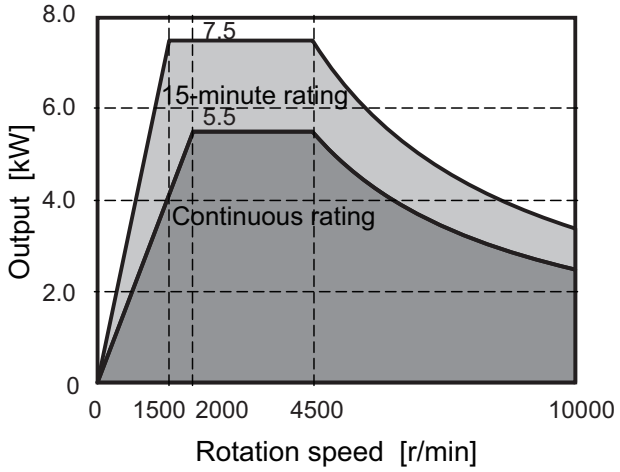
(*2)



(Note) The load point is at the one-half of the shaft length.

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

Output characteristics

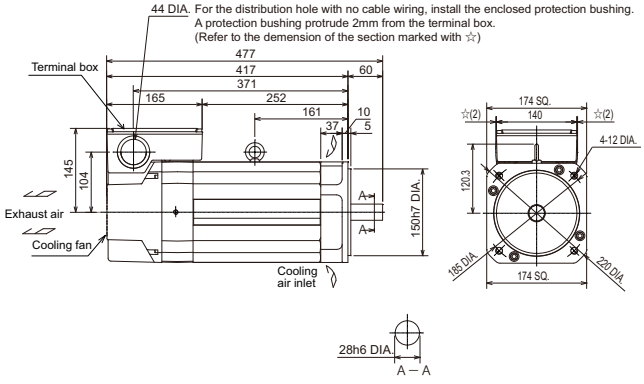


Environmental conditions

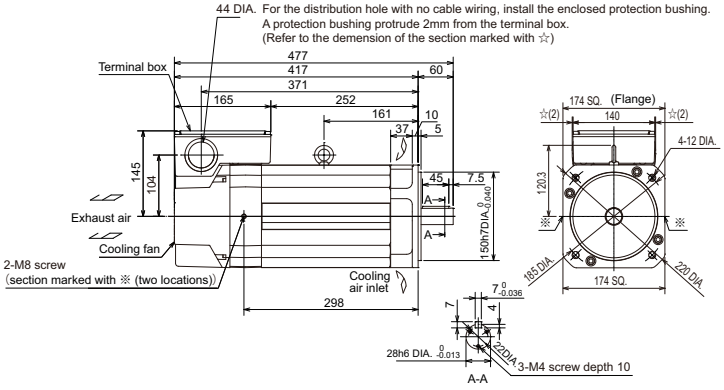
Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Outline dimension drawings [Unit : mm]

SJ-DJ7.5/100-01 with standard flange



SJ-DJ7.5/100-01-C with standard flange (with key)



Base rotation speed 1500r/min series

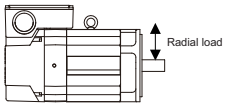
SJ-DJ11/100-01

Specifications

Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-D-SP-160
	2-axis type	MDS-D-SP2-16080S (L) MDS-D-SP2-16080 (L)
	Multi axis integrated type	MDS-DM-SPV2/SPV2F-16080 MDS-DM-SPV3/SPV3F-16080
	Regenerative resistor type	MDS-D-SPJ3-110/110NA
Output capacity[kW]	Continuous rated output	7.5
	Short time rated output	11 (15-minute rating)
	Standard output during acceleration/deceleration	11
	Actual acceleration/deceleration output (*3)	13.2
Base rotation speed	Continuous rating[r/min]	2000
	Short time rating[r/min]	1500
Maximum rotation speed[r/min]		10000
Frame No.		A112
Continuous rated torque[N・m]		35.8
GD^2 [kg・m^2]		0.094
Inertia[kg・m^2]		0.023
Tolerable radial load(*2) [N]		1960
Cooling fan	Input voltage	3-phase 200V
	Maximum power consumption	50W
Degree of protection		IP54 (The shaft-through portion is excluded.)
Mass[kg]		53
Heat-resistant class		155(F)

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

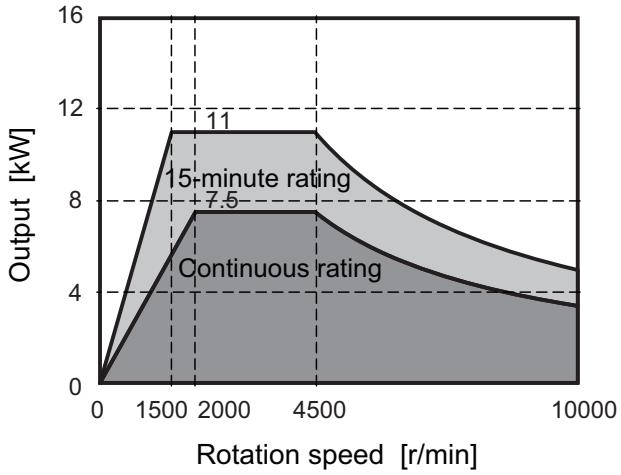
(*2)



(Note) The load point is at the one-half of the shaft length.

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

Output characteristics

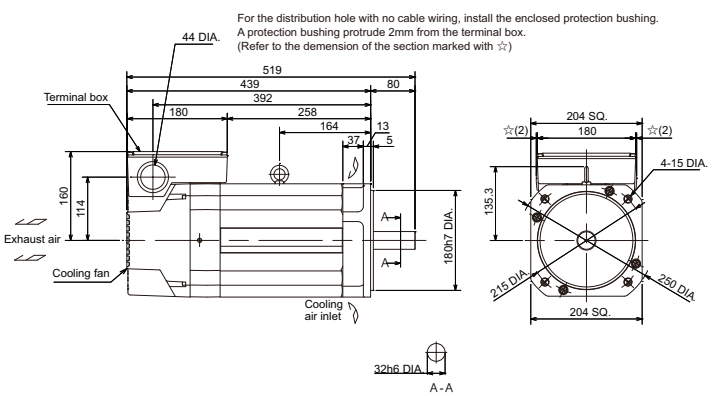


Environmental conditions

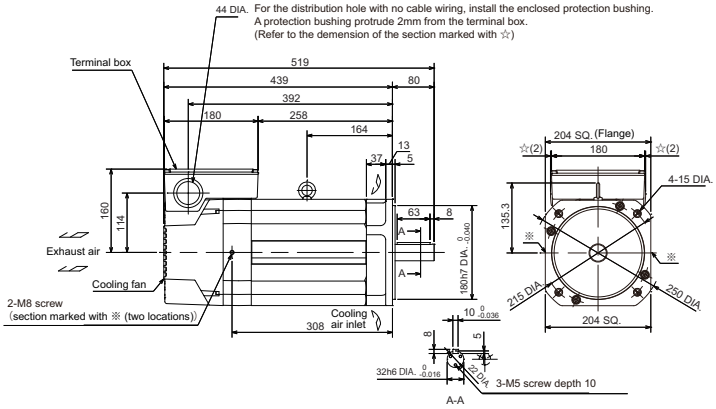
Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Outline dimension drawings [Unit : mm]

SJ-DJ11/100-01 with standard flange



SJ-DJ11/100-01-C with standard flange (with key)



Base rotation speed 1500r/min series

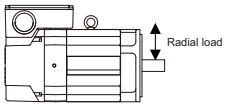
SJ-DJ15/80-01

Specifications

Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-D-SP-200
	2-axis type	-
	Multi axis integrated type	MDS-DM-SPV2/SPV2F-20080 MDS-DM-SPV3/SPV3F-20080
	Regenerative resistor type	-
Output capacity[kW]	Continuous rated output	11
	Short time rated output	15 (15-minute rating) (15%ED rating)
	Standard output during acceleration/deceleration	15
	Actual acceleration/deceleration output (*3)	18
Base rotation speed	Continuous rating[r/min]	2000
	Short time rating[r/min]	1500
Maximum rotation speed[r/min]		8000
Frame No.		B112
Continuous rated torque[N・m]		52.5
GD^2 [kg・m^2]		0.122
Inertia[kg・m^2]		0.031
Tolerable radial load(*2) [N]		1960
Cooling fan	Input voltage	3-phase 200V
	Maximum power consumption	50W
Degree of protection		IP54 (The shaft-through portion is excluded.)
Mass[kg]		64
Heat-resistant class		155(F)

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)



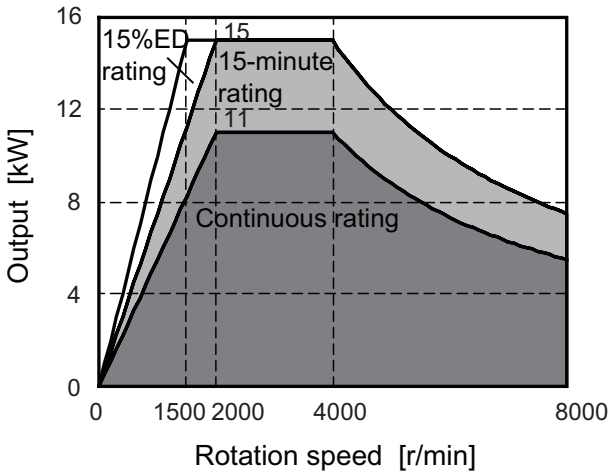
(Note) The load point is at the one-half of the shaft length.

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

Environmental conditions

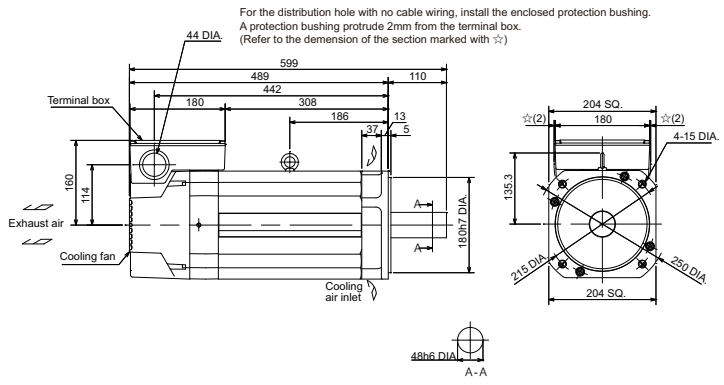
Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Output characteristics

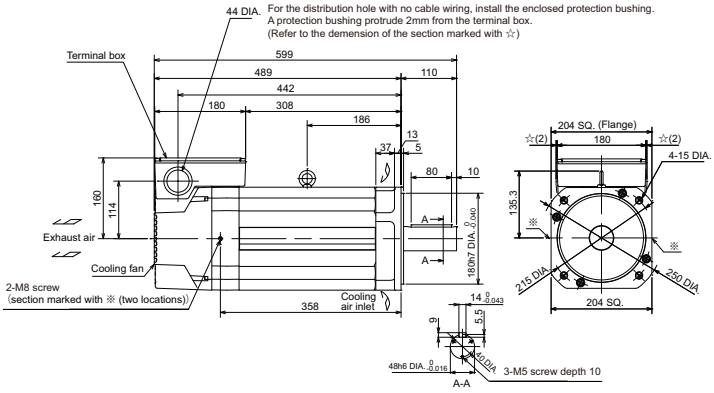


Outline dimension drawings [Unit : mm]

SJ-DJ15/80-01 with standard flange



SJ-DJ15/80-01-C with standard flange (with key)



Built-in spindle motor

Built-in IM spindle motor

SJ-2B4A01T

Specifications

Item		Specifications
Compatible spindle drive unit (*1)		MDS-D-SP-80
AC reactor for spindle motor		-
Coil changeover		-
Output capacity[kW]	Continuous rated output	1.0
	Short time rated output	1.5(15-minute rating)
	Standard output during acceleration/deceleration	2.2
	Actual acceleration/deceleration output (*3)	2.64
Base rotation speed	Continuous[r/min]	5000
	Short time[r/min]	5000
Maximum rotation speed[r/min]		10000
Frame No.		50-55
Torque (Base rotation speed)	Continuous[N・m]	1.91
	Short time[N・m]	2.86
Rotor GD^2 [kg・m^2]		0.00081
Rotor inertia moment[kg・m^2]		0.00020
Mass	Stator[kg]	1.9
	Rotor[kg]	0.5
Overload capacity (for one minute)		120% of short-time rated output
Ambient temperature[°C]		0 to 40
Heat-resistant class		F(155°C)
Tolerable vibration		Maximum stationary tolerable value 9.8m/s^2(1G), Momentary stationary tolerable value 29.4m/s^2(3G)
Required cooling capacity (*2)[W]		540
Cooling oil amount[l/min (20°C)]		5

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

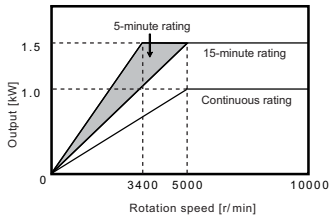
(*2) The value for the short-time rated output is shown for the required cooling capacity. Install a cooling jacket around the stator and use fluid cooling (oil cooling).

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

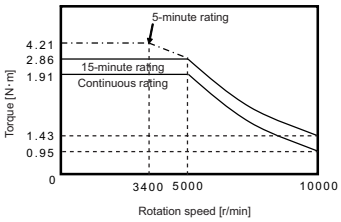
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

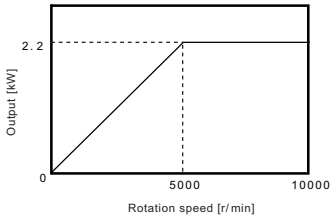
Output at steady state - rotation speed characteristics



Torque at steady state-rotation speed characteristics

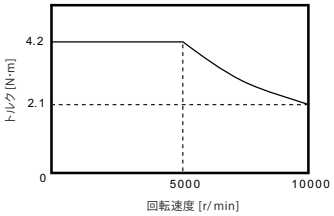


Output at acceleration/deceleration-rotation speed characteristics



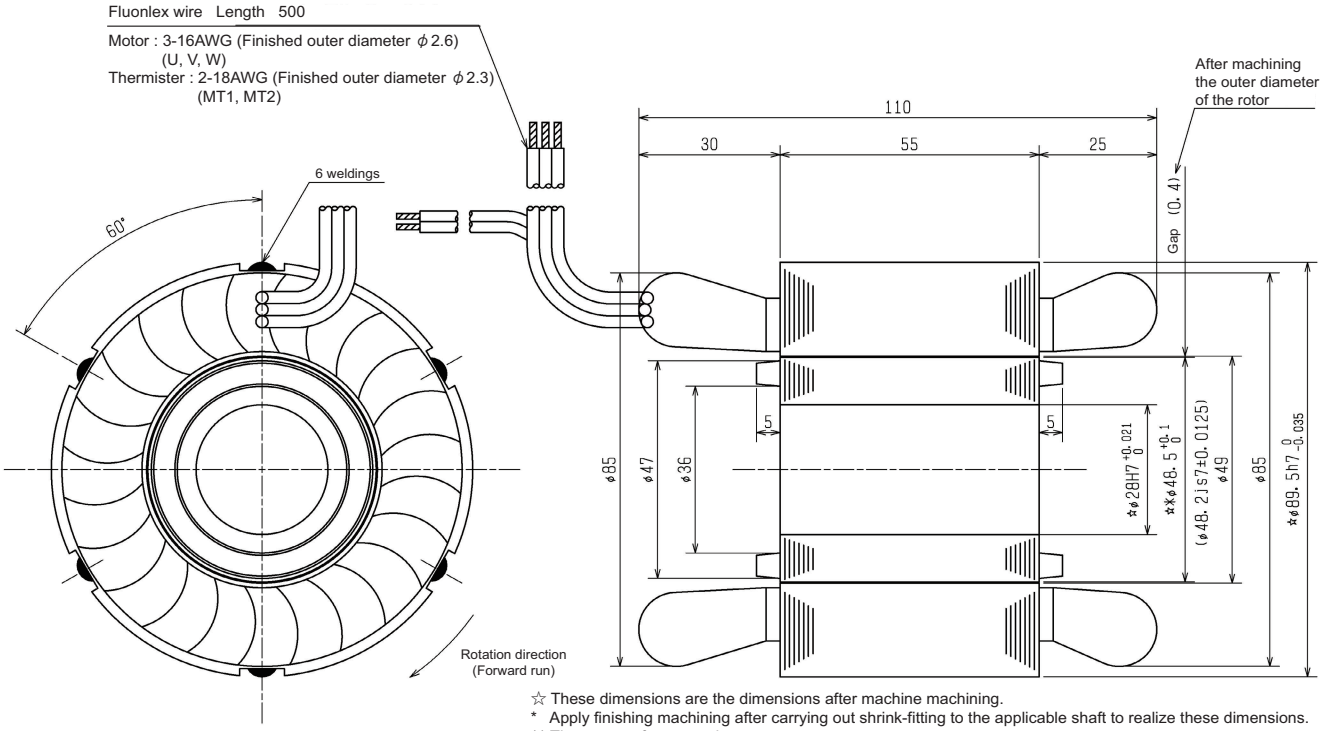
120% of this characteristics is output at the time of actual acceleration/deceleration.

Torque at acceleration/deceleration-rotation speed characteristics



120% of this characteristics is torque at the time of actual acceleration/deceleration.

Outline dimension drawings [Unit : mm]



☆ These dimensions are the dimensions after machine machining.
* Apply finishing machining after carrying out shrink-fitting to the applicable shaft to realize these dimensions.
( ) These are reference values.

Built-in IM spindle motor

SJ-2B4002T

Specifications

Item		Specifications
Compatible spindle drive unit (*1)		MDS-D-SP-20
AC reactor for spindle motor		-
Coil changeover		-
Output capacity[kW]	Continuous rated output	0.4
	Short time rated output	0.75(15-minute rating)
	Standard output during acceleration/deceleration	0.75
	Actual acceleration/deceleration output (*3)	0.9
Base rotation speed	Continuous[r/min]	3000
	Short time[r/min]	3000
Maximum rotation speed[r/min]		10000
Frame No.		63-50
Torque (Base rotation speed)	Continuous[N・m]	1.27
	Short time[N・m]	2.39
Rotor GD^2 [kg・m^2]		0.0031
Rotor inertia moment[kg・m^2]		0.00078
Mass	Stator[kg]	2.2
	Rotor[kg]	0.9
Overload capacity (for one minute)		120% of short-time rated output
Ambient temperature[°C]		0 to 40
Heat-resistant class		F(155°C)
Tolerable vibration		Maximum stationary tolerable value 9.8m/s^2(1G), Momentary stationary tolerable value 29.4m/s^2(3G)
Required cooling capacity (*2)[W]		240
Cooling oil amount[l/min (20°C)]		5

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

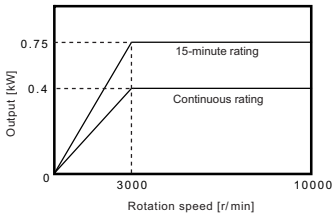
(*2) The value for the short-time rated output is shown for the required cooling capacity. Install a cooling jacket around the stator and use fluid cooling (oil cooling).

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

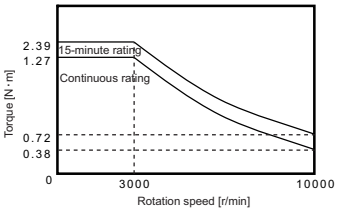
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Output at steady state - rotation speed characteristics



Torque at steady state-rotation speed characteristics



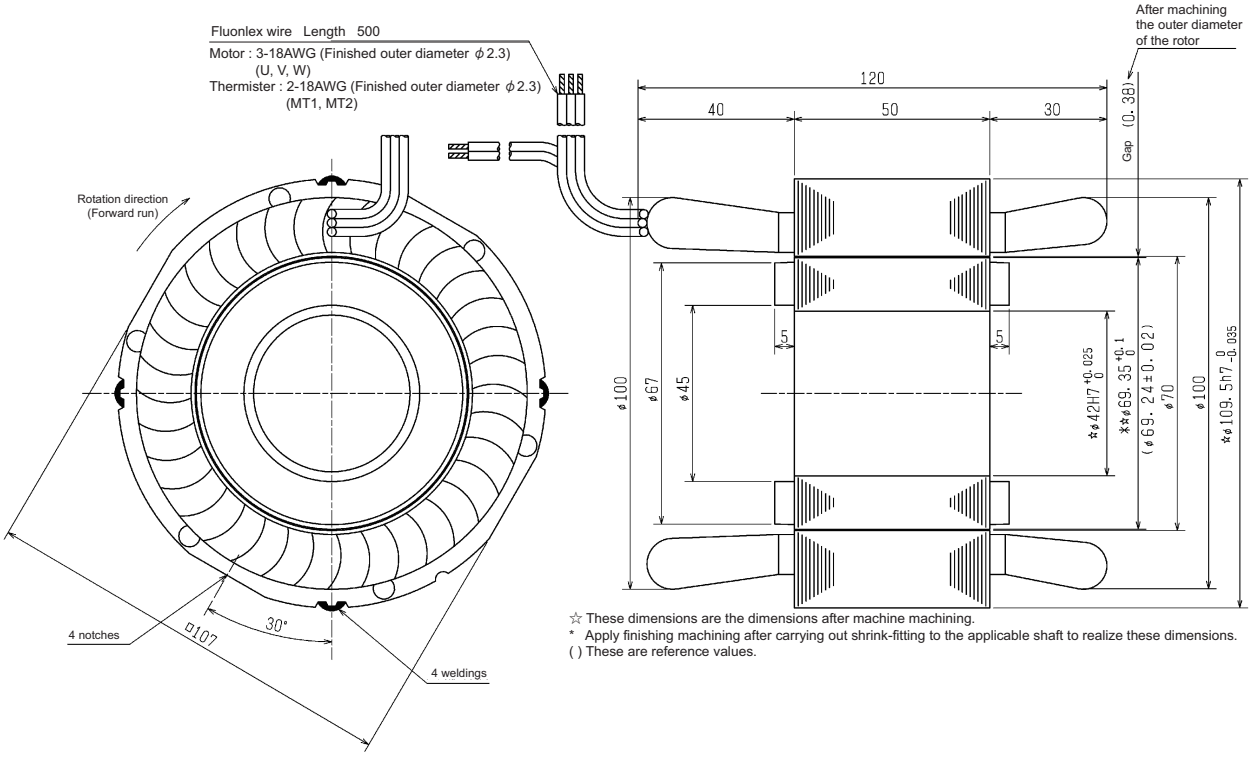
Output at acceleration/deceleration-rotation speed characteristics

120% of the 15-minute rating characteristics is output at the time of acceleration/deceleration.

Torque at acceleration/deceleration-rotation speed characteristics

120% of the 15-minute rating characteristics is torque at the time of acceleration/deceleration.

Outline dimension drawings [Unit : mm]



☆ These dimensions are the dimensions after machine machining.
* Apply finishing machining after carrying out shrink-fitting to the applicable shaft to realize these dimensions.
( ) These are reference values.

Built-in IM spindle motor

SJ-2B4004T

Specifications

Item		Specifications
Compatible spindle drive unit (*1)		MDS-D-SP-40
AC reactor for spindle motor		-
Coil changeover		-
Output capacity[kW]	Continuous rated output	0.75
	Short time rated output	1.5(15-minute rating)
	Standard output during acceleration/deceleration	1.5
	Actual acceleration/deceleration output (*3)	1.8
Base rotation speed	Continuous[r/min]	3000
	Short time[r/min]	3000
Maximum rotation speed[r/min]		15000
Frame No.		63-50
Torque (Base rotation speed)	Continuous[N・m]	2.39
	Short time[N・m]	4.77
Rotor GD^2 [kg・m^2]		0.0031
Rotor inertia moment[kg・m^2]		0.00078
Mass	Stator[kg]	2.2
	Rotor[kg]	0.9
Overload capacity (for one minute)		120% of short-time rated output
Ambient temperature[°C]		0 to 40
Heat-resistant class		F(155°C)
Tolerable vibration		Maximum stationary tolerable value 9.8m/s^2(1G), Momentary stationary tolerable value 29.4m/s^2(3G)
Required cooling capacity (*2)[W]		530
Cooling oil amount[l/min (20°C)]		5

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

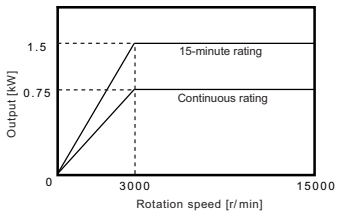
(*2) The value for the short-time rated output is shown for the required cooling capacity. Install a cooling jacket around the stator and use fluid cooling (oil cooling).

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

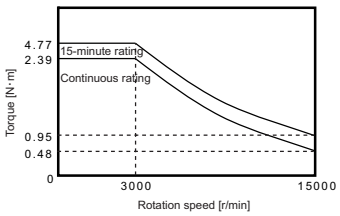
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Output at steady state - rotation speed characteristics



Torque at steady state-rotation speed characteristics



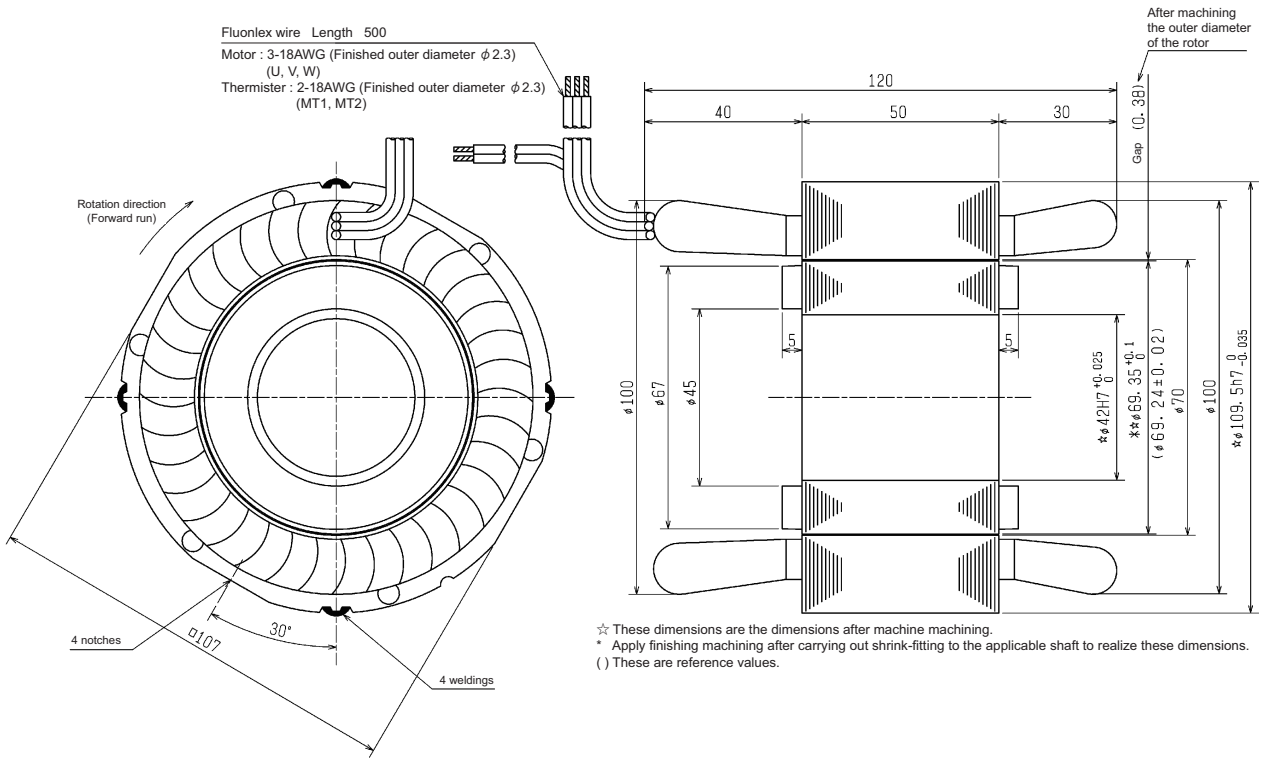
Output at acceleration/deceleration-rotation speed characteristics

120% of the 15-minute rating characteristics is output at the time of acceleration/deceleration.

Torque at acceleration/deceleration-rotation speed characteristics

120% of the 15-minute rating characteristics is torque at the time of acceleration/deceleration.

Outline dimension drawings [Unit : mm]



☆ These dimensions are the dimensions after machine machining.
* Apply finishing machining after carrying out shrink-fitting to the applicable shaft to realize these dimensions.
( ) These are reference values.

Built-in IM spindle motor

SJ-2B4003T

Specifications

Item		Specifications
Compatible spindle drive unit (*1)		MDS-D-SP-40
AC reactor for spindle motor		-
Coil changeover		-
Output capacity[kW]	Continuous rated output	1.5
	Short time rated output	2.2(15-minute rating)
	Standard output during acceleration/deceleration	2.2
	Actual acceleration/deceleration output (*3)	2.64
Base rotation speed	Continuous[r/min]	3000
	Short time[r/min]	3000
Maximum rotation speed[r/min]		12000
Frame No.		63-90
Torque (Base rotation speed)	Continuous[N・m]	4.77
	Short time[N・m]	7.00
Rotor GD^2 [kg・m^2]		0.0055
Rotor inertia moment[kg・m^2]		0.00138
Mass	Stator[kg]	3.9
	Rotor[kg]	1.7
Overload capacity (for one minute)		120% of short-time rated output
Ambient temperature[°C]		0 to 40
Heat-resistant class		F(155°C)
Tolerable vibration		Maximum stationary tolerable value 9.8m/s^2(1G), Momentary stationary tolerable value 29.4m/s^2(3G)
Required cooling capacity (*2)[W]		570
Cooling oil amount[l/min (20°C)]		5

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

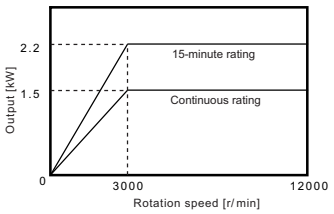
(*2) The value for the short-time rated output is shown for the required cooling capacity. Install a cooling jacket around the stator and use fluid cooling (oil cooling).

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

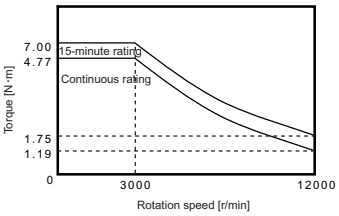
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Output at steady state - rotation speed characteristics



Torque at steady state-rotation speed characteristics



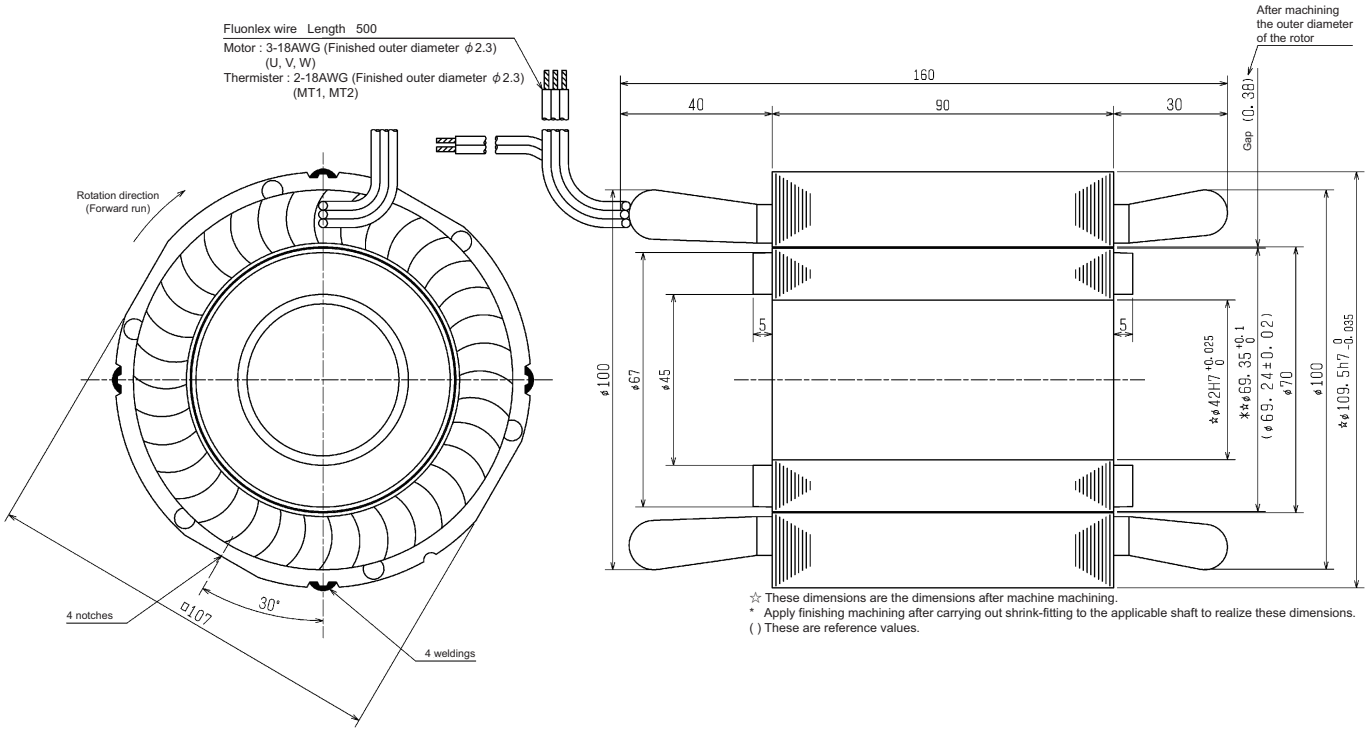
Output at acceleration/deceleration-rotation speed characteristics

120% of the 15-minute rating characteristics is output at the time of acceleration/deceleration.

Torque at acceleration/deceleration-rotation speed characteristics

120% of the 15-minute rating characteristics is torque at the time of acceleration/deceleration.

Outline dimension drawings [Unit : mm]



Built-in IM spindle motor

SJ-2B4B01T

Specifications

Item		Specifications
Compatible spindle drive unit (*1)		MDS-D-SP-160
AC reactor for spindle motor		-
Coil changeover		-
Output capacity[kW]	Continuous rated output	2.2
	Short time rated output	3.7(15-minute rating)
	Standard output during acceleration/deceleration	7.5
	Actual acceleration/deceleration output (*3)	9
Base rotation speed	Continuous[r/min]	5500
	Short time[r/min]	5500
Maximum rotation speed[r/min]		10000
Frame No.		70-70
Torque (Base rotation speed)	Continuous[N・m]	3.82
	Short time[N・m]	6.42
Rotor GD^2 [kg・m^2]		0.0065
Rotor inertia moment[kg・m^2]		0.00163
Mass	Stator[kg]	3.0
	Rotor[kg]	1.5
Overload capacity (for one minute)		120% of short-time rated output
Ambient temperature[°C]		0 to 40
Heat-resistant class		F(155°C)
Tolerable vibration		Maximum stationary tolerable value 9.8m/s^2(1G), Momentary stationary tolerable value 29.4m/s^2(3G)
Required cooling capacity (*2)[W]		720
Cooling oil amount[l/min (20°C)]		5

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

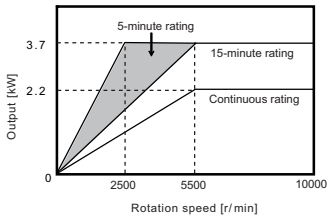
(*2) The value for the short-time rated output is shown for the required cooling capacity. Install a cooling jacket around the stator and use fluid cooling (oil cooling).

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

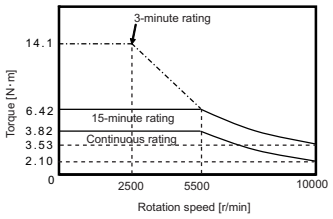
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

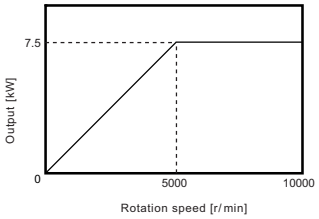
Output at steady state - rotation speed characteristics



Torque at steady state-rotation speed characteristics

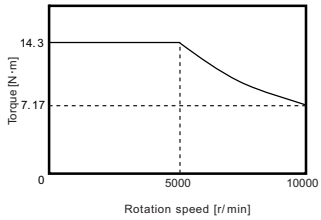


Output at acceleration/deceleration-rotation speed characteristics



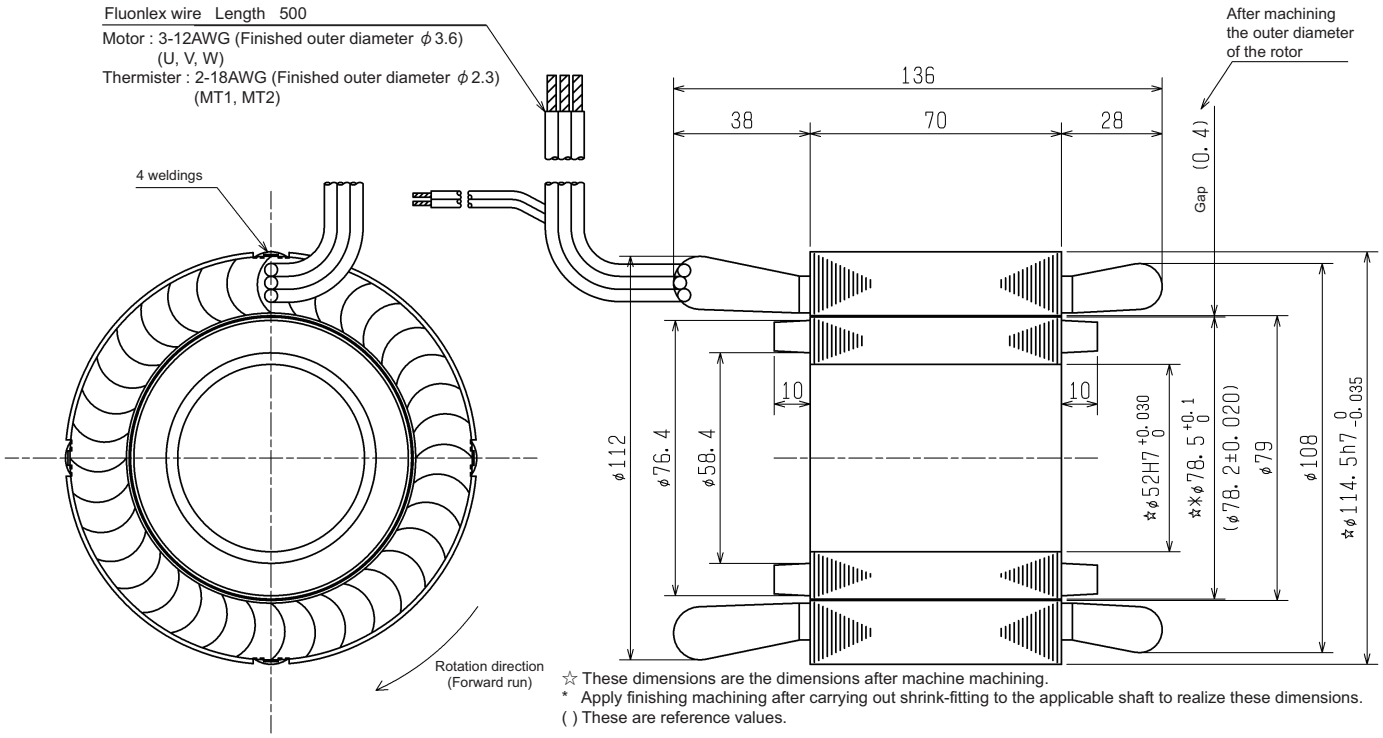
120% of this characteristics is output at the time of actual acceleration/deceleration.

Torque at acceleration/deceleration-rotation speed characteristics



120% of this characteristics is torque at the time of actual acceleration/deceleration.

Outline dimension drawings [Unit : mm]



☆ These dimensions are the dimensions after machine machining.
* Apply finishing machining after carrying out shrink-fitting to the applicable shaft to realize these dimensions.
( ) These are reference values.

Built-in IM spindle motor

SJ-2B4112T

Specifications

Item		Specifications
Compatible spindle drive unit (*1)		MDS-D-SP-40
AC reactor for spindle motor		-
Coil changeover		-
Output capacity[kW]	Continuous rated output	1.5
	Short time rated output	2.2(15-minute rating)
	Standard output during acceleration/deceleration	2.2
	Actual acceleration/deceleration output (*3)	2.64
Base rotation speed	Continuous[r/min]	2500
	Short time[r/min]	2500
Maximum rotation speed[r/min]		10000
Frame No.		71-66
Torque (Base rotation speed)	Continuous[N・m]	5.73
	Short time[N・m]	8.40
Rotor GD^2 [kg・m^2]		0.0067
Rotor inertia moment[kg・m^2]		0.00168
Mass	Stator[kg]	4.1
	Rotor[kg]	1.7
Overload capacity (for one minute)		120% of short-time rated output
Ambient temperature[°C]		0 to 40
Heat-resistant class		F(155°C)
Tolerable vibration		Maximum stationary tolerable value 9.8m/s^2(1G), Momentary stationary tolerable value 29.4m/s^2(3G)
Required cooling capacity (*2)[W]		570
Cooling oil amount[l/min (20°C)]		5

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

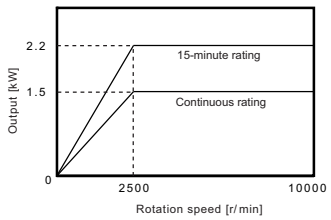
(*2) The value for the short-time rated output is shown for the required cooling capacity. Install a cooling jacket around the stator and use fluid cooling (oil cooling).

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

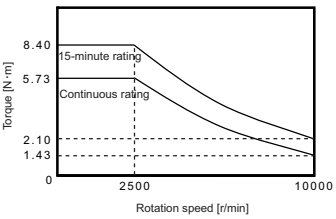
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Output at steady state - rotation speed characteristics



Torque at steady state-rotation speed characteristics



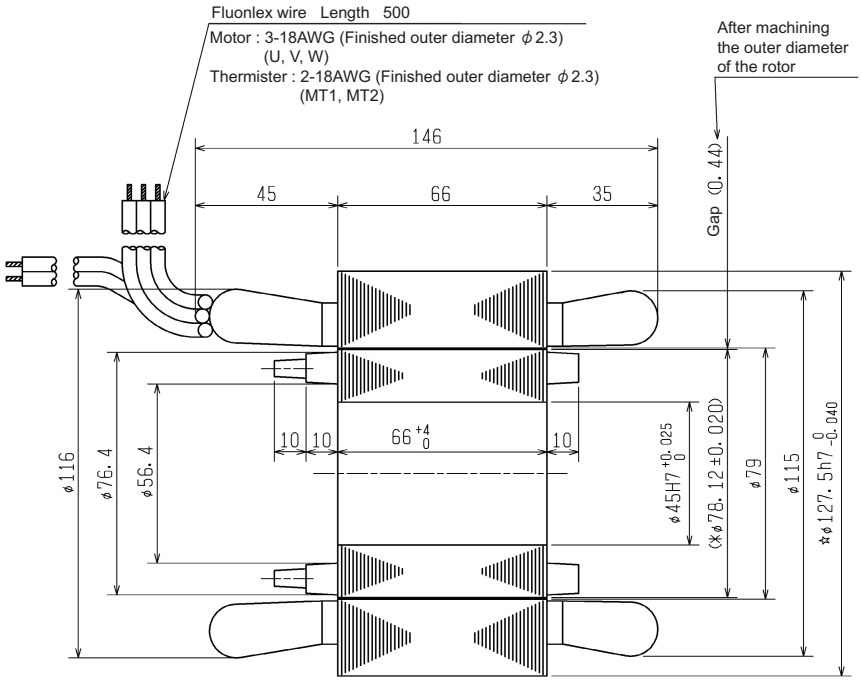
Output at acceleration/deceleration-rotation speed characteristics

120% of the 15-minute rating characteristics is output at the time of acceleration/deceleration.

Torque at acceleration/deceleration-rotation speed characteristics

120% of the 15-minute rating characteristics is torque at the time of acceleration/deceleration.

Outline dimension drawings [Unit : mm]



☆ These dimensions are the dimensions after machine machining.
* Apply finishing machining after carrying out shrink-fitting to the applicable shaft to realize these dimensions.
( ) These are reference values.

Built-in IM spindle motor

SJ-2B4111T

Specifications

Item		Specifications
Compatible spindle drive unit (*1)		MDS-D-SP-80
AC reactor for spindle motor		BKO-NC6783H31
Coil changeover		-
Output capacity[kW]	Continuous rated output	3.7
	Short time rated output	5.5(10-minute rating)
	Standard output during acceleration/deceleration	5.5
	Actual acceleration/deceleration output (*3)	6.6
Base rotation speed	Continuous[r/min]	6000
	Short time[r/min]	6000
Maximum rotation speed[r/min]		10000
Frame No.		71-66
Torque (Base rotation speed)	Continuous[N・m]	5.89
	Short time[N・m]	8.75
Rotor GD^2 [kg・m^2]		0.0067
Rotor inertia moment[kg・m^2]		0.00168
Mass	Stator[kg]	4.1
	Rotor[kg]	1.7
Overload capacity (for one minute)		120% of short-time rated output
Ambient temperature[°C]		0 to 40
Heat-resistant class		F(155°C)
Tolerable vibration		Maximum stationary tolerable value 9.8m/s^2(1G), Momentary stationary tolerable value 29.4m/s^2(3G)
Required cooling capacity (*2)[W]		870
Cooling oil amount[l/min (20°C)]		5

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

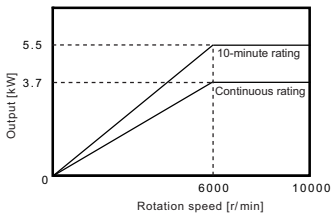
(*2) The value for the short-time rated output is shown for the required cooling capacity. Install a cooling jacket around the stator and use fluid cooling (oil cooling).

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

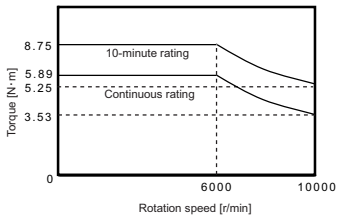
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Output at steady state - rotation speed characteristics



Torque at steady state-rotation speed characteristics



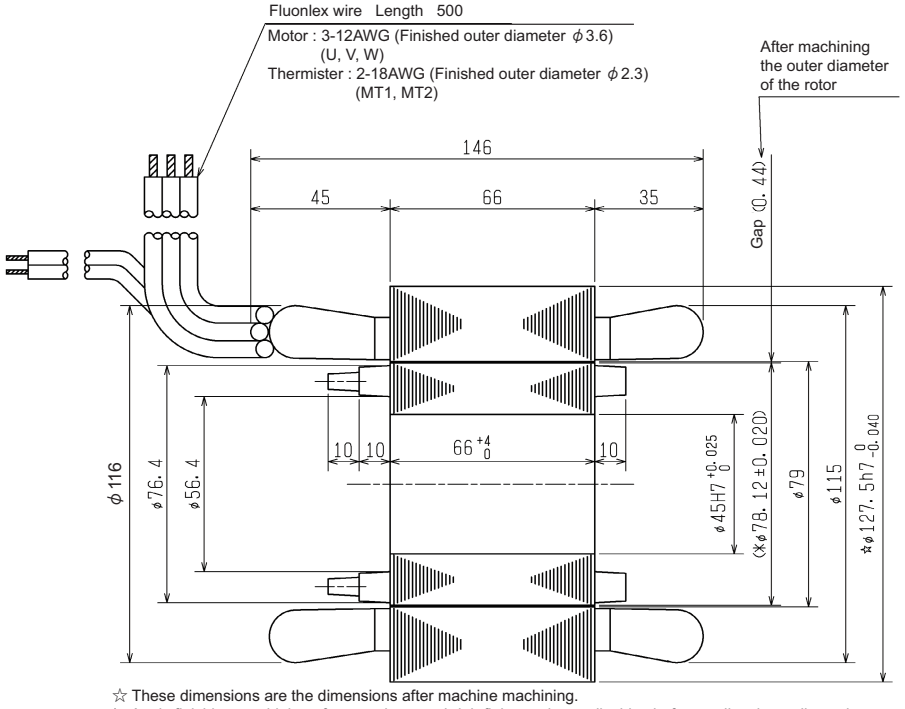
Output at acceleration/deceleration-rotation speed characteristics

120% of the 10-minute rating characteristics is output at the time of acceleration/deceleration.

Torque at acceleration/deceleration-rotation speed characteristics

120% of the 10-minute rating characteristics is torque at the time of acceleration/deceleration.

Outline dimension drawings [Unit : mm]



☆ These dimensions are the dimensions after machine machining.
* Apply finishing machining after carrying out shrink-fitting to the applicable shaft to realize these dimensions.
( ) These are reference values.

Built-in IM spindle motor

SJ-2B4105T

Specifications

Item		Specifications
Compatible spindle drive unit (*1)		MDS-D-SP-80
AC reactor for spindle motor		-
Coil changeover		-
Output capacity[kW]	Continuous rated output	2.2
	Short time rated output	3.7(15-minute rating)
	Standard output during acceleration/deceleration	3.7
	Actual acceleration/deceleration output (*3)	4.44
Base rotation speed	Continuous[r/min]	3000
	Short time[r/min]	3000
Maximum rotation speed[r/min]		15000
Frame No.		71-120
Torque (Base rotation speed)	Continuous[N・m]	7.00
	Short time[N・m]	11.8
Rotor GD^2 [kg・m^2]		0.0012
Rotor inertia moment[kg・m^2]		0.003
Mass	Stator[kg]	7.4
	Rotor[kg]	3.0
Overload capacity (for one minute)		120% of short-time rated output
Ambient temperature[°C]		0 to 40
Heat-resistant class		F(155°C)
Tolerable vibration		Maximum stationary tolerable value 9.8m/s^2(1G), Momentary stationary tolerable value 29.4m/s^2(3G)
Required cooling capacity (*2)[W]		700
Cooling oil amount[l/min (20°C)]		5

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

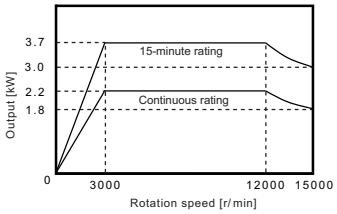
(*2) The value for the short-time rated output is shown for the required cooling capacity. Install a cooling jacket around the stator and use fluid cooling (oil cooling).

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

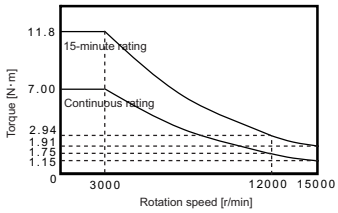
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Output at steady state - rotation speed characteristics



Torque at steady state-rotation speed characteristics



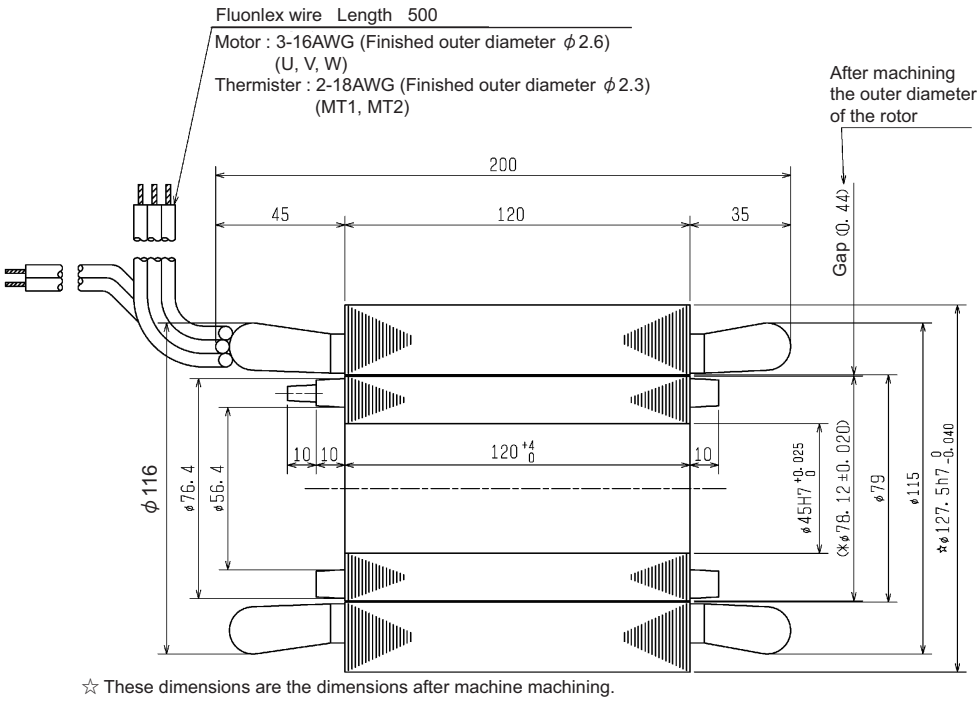
Output at acceleration/deceleration-rotation speed characteristics

120% of the 15-minute rating characteristics is output at the time of acceleration/deceleration.

Torque at acceleration/deceleration-rotation speed characteristics

120% of the 15-minute rating characteristics is torque at the time of acceleration/deceleration.

Outline dimension drawings [Unit : mm]



☆ These dimensions are the dimensions after machine machining.

* Apply finishing machining after carrying out shrink-fitting to the applicable shaft to realize these dimensions.

( ) These are reference values.

Built-in IM spindle motor

SJ-2B4102T

Specifications

Item		Specifications
Compatible spindle drive unit (*1)		MDS-D-SP-80
AC reactor for spindle motor		-
Coil changeover		-
Output capacity[kW]	Continuous rated output	1.1
	Short time rated output	3.7(10-minute rating)
	Standard output during acceleration/deceleration	3.7
	Actual acceleration/deceleration output (*3)	4.44
Base rotation speed	Continuous[r/min]	1500
	Short time[r/min]	1500
Maximum rotation speed[r/min]		15000
Frame No.		71-170
Torque (Base rotation speed)	Continuous[N・m]	7.00
	Short time[N・m]	23.6
Rotor GD^2 [kg・m^2]		0.0017
Rotor inertia moment[kg・m^2]		0.00425
Mass	Stator[kg]	10
	Rotor[kg]	4.3
Overload capacity (for one minute)		120% of short-time rated output
Ambient temperature[°C]		0 to 40
Heat-resistant class		F(155°C)
Tolerable vibration		Maximum stationary tolerable value 9.8m/s^2(1G), Momentary stationary tolerable value 29.4m/s^2(3G)
Required cooling capacity (*2)[W]		1530
Cooling oil amount[l/min (20°C)]		5

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

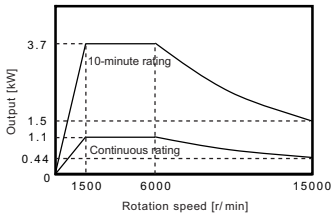
(*2) The value for the short-time rated output is shown for the required cooling capacity. Install a cooling jacket around the stator and use fluid cooling (oil cooling).

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

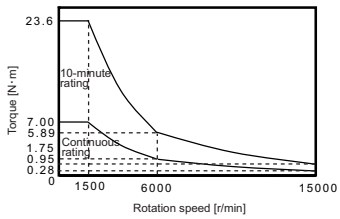
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Output at steady state - rotation speed characteristics



Torque at steady state-rotation speed characteristics



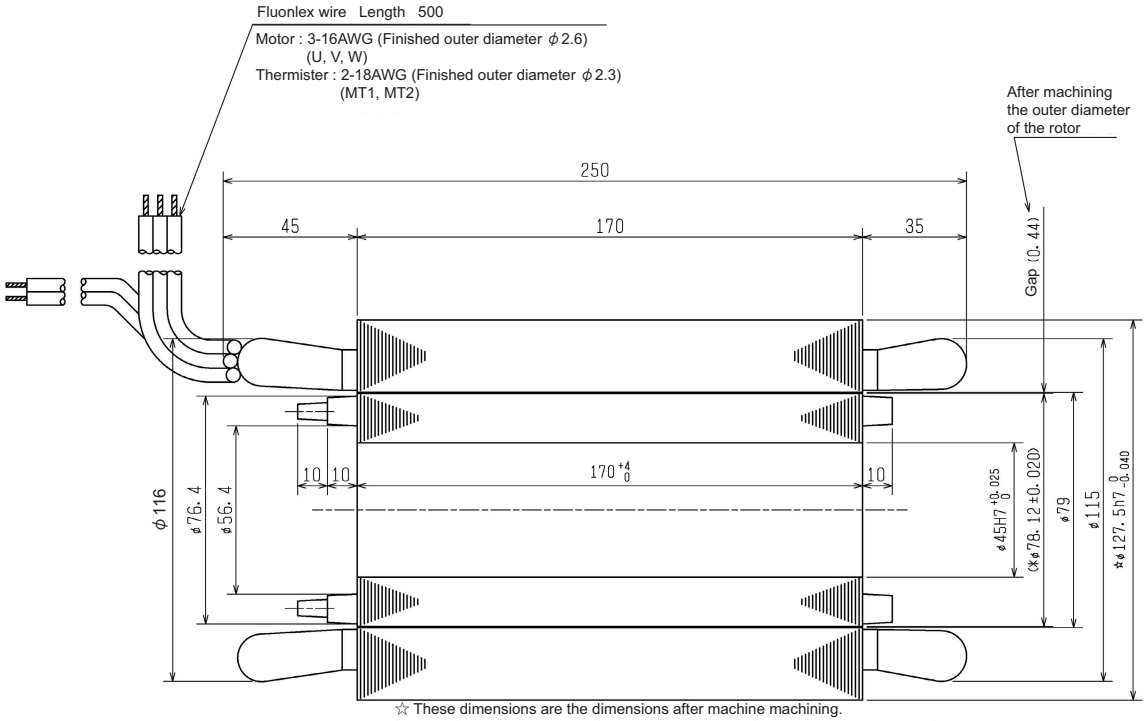
Output at acceleration/deceleration-rotation speed characteristics

120% of the 10-minute rating characteristics is output at the time of acceleration/deceleration.

Torque at acceleration/deceleration-rotation speed characteristics

120% of the 10-minute rating characteristics is torque at the time of acceleration/deceleration.

Outline dimension drawings [Unit : mm]



☆ These dimensions are the dimensions after machine machining.
* Apply finishing machining after carrying out shrink-fitting to the applicable shaft to realize these dimensions.
( ) These are reference values.

Built-in IM spindle motor

SJ-2B4201T

Specifications

Item		Specifications
Compatible spindle drive unit (*1)		MDS-D-SP-40
AC reactor for spindle motor		-
Coil changeover		-
Output capacity[kW]	Continuous rated output	1.5
	Short time rated output	2.2(15-minute rating)
	Standard output during acceleration/deceleration	2.2
	Actual acceleration/deceleration output (*3)	2.64
Base rotation speed	Continuous[r/min]	1500
	Short time[r/min]	1500
Maximum rotation speed[r/min]		15000
Frame No.		100-75
Torque (Base rotation speed)	Continuous[N・m]	9.55
	Short time[N・m]	14.0
Rotor GD^2 [kg・m^2]		0.020
Rotor inertia moment[kg・m^2]		0.005
Mass	Stator[kg]	7.1
	Rotor[kg]	2.9
Overload capacity (for one minute)		120% of short-time rated output
Ambient temperature[°C]		0 to 40
Heat-resistant class		F(155°C)
Tolerable vibration		Maximum stationary tolerable value 9.8m/s^2(1G), Momentary stationary tolerable value 29.4m/s^2(3G)
Required cooling capacity (*2)[W]		510
Cooling oil amount[l/min (20°C)]		5

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

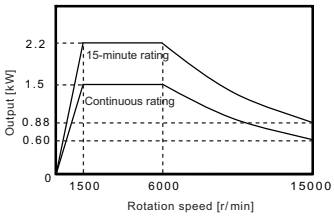
(*2) The value for the short-time rated output is shown for the required cooling capacity. Install a cooling jacket around the stator and use fluid cooling (oil cooling).

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

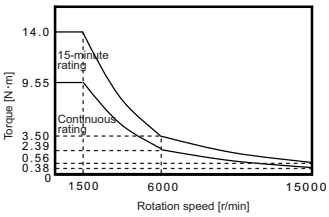
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Output at steady state - rotation speed characteristics



Torque at steady state-rotation speed characteristics



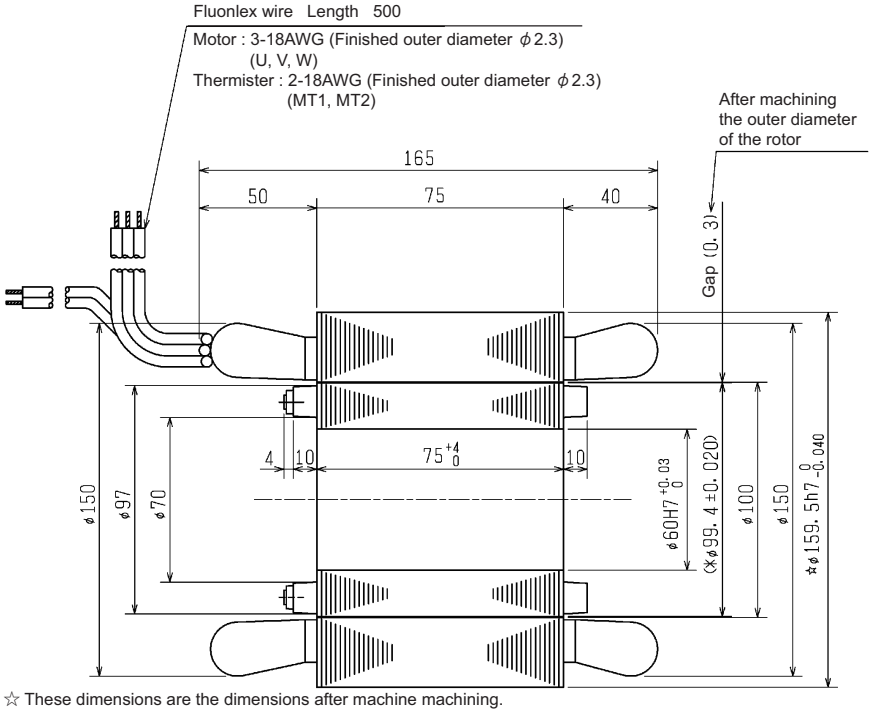
Output at acceleration/deceleration-rotation speed characteristics

120% of the 15-minute rating characteristics is output at the time of acceleration/deceleration.

Torque at acceleration/deceleration-rotation speed characteristics

120% of the 15-minute rating characteristics is torque at the time of acceleration/deceleration.

Outline dimension drawings [Unit : mm]



☆ These dimensions are the dimensions after machine machining.

* Apply finishing machining after carrying out shrink-fitting to the applicable shaft to realize these dimensions.

( ) These are reference values.

Built-in IM spindle motor

SJ-2B4218T

Specifications

Item		Specifications
Compatible spindle drive unit (*1)		MDS-D-SP-80
AC reactor for spindle motor		-
Coil changeover		-
Output capacity[kW]	Continuous rated output	1.5
	Short time rated output	3.7(15-minute rating)
	Standard output during acceleration/deceleration	3.7
	Actual acceleration/deceleration output (*3)	4.44
Base rotation speed	Continuous[r/min]	1500
	Short time[r/min]	2500
Maximum rotation speed[r/min]		10000
Frame No.		100-75
Torque (Base rotation speed)	Continuous[N・m]	9.55
	Short time[N・m]	14.1
Rotor GD^2 [kg・m^2]		0.020
Rotor inertia moment[kg・m^2]		0.005
Mass	Stator[kg]	7.1
	Rotor[kg]	2.9
Overload capacity (for one minute)		120% of short-time rated output
Ambient temperature[°C]		0 to 40
Heat-resistant class		F(155°C)
Tolerable vibration		Maximum stationary tolerable value 9.8m/s^2(1G), Momentary stationary tolerable value 29.4m/s^2(3G)
Required cooling capacity (*2)[W]		650
Cooling oil amount[l/min (20°C)]		5

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

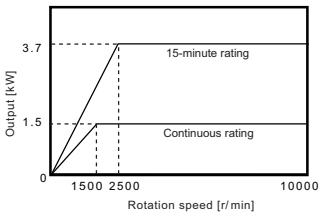
(*2) The value for the short-time rated output is shown for the required cooling capacity. Install a cooling jacket around the stator and use fluid cooling (oil cooling).

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

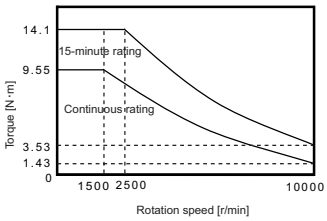
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Output at steady state - rotation speed characteristics



Torque at steady state-rotation speed characteristics



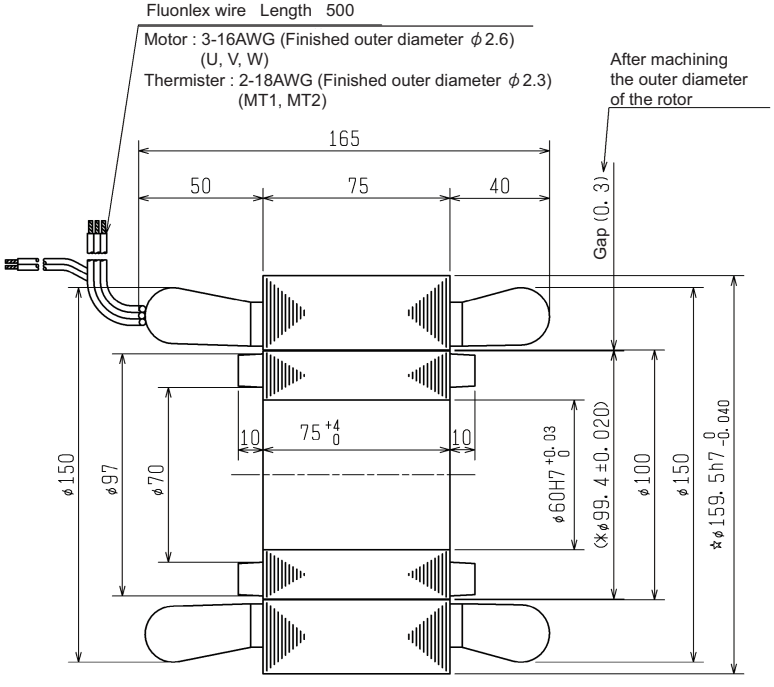
Output at acceleration/deceleration-rotation speed characteristics

120% of the 15-minute rating characteristics is output at the time of acceleration/deceleration.

Torque at acceleration/deceleration-rotation speed characteristics

120% of the 15-minute rating characteristics is torque at the time of acceleration/deceleration.

Outline dimension drawings [Unit : mm]



☆ These dimensions are the dimensions after machine machining.
* Apply finishing machining after carrying out shrink-fitting to the applicable shaft to realize these dimensions.
( ) These are reference values.

Built-in IM spindle motor

SJ-2B4202T

Specifications

Item		Specifications
Compatible spindle drive unit (*1)		MDS-D-SP-80
AC reactor for spindle motor		-
Coil changeover		-
Output capacity[kW]	Continuous rated output	2.2
	Short time rated output	3.7(15-minute rating)
	Standard output during acceleration/deceleration	3.7
	Actual acceleration/deceleration output (*3)	4.44
Base rotation speed	Continuous[r/min]	1500
	Short time[r/min]	1500
Maximum rotation speed[r/min]		15000
Frame No.		100-105
Torque (Base rotation speed)	Continuous[N・m]	14.0
	Short time[N・m]	23.6
Rotor GD^2 [kg・m^2]		0.027
Rotor inertia moment[kg・m^2]		0.0068
Mass	Stator[kg]	10
	Rotor[kg]	4.1
Overload capacity (for one minute)		120% of short-time rated output
Ambient temperature[°C]		0 to 40
Heat-resistant class		F(155°C)
Tolerable vibration		Maximum stationary tolerable value 9.8m/s^2(1G), Momentary stationary tolerable value 29.4m/s^2(3G)
Required cooling capacity (*2)[W]		830
Cooling oil amount[l/min (20°C)]		5

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

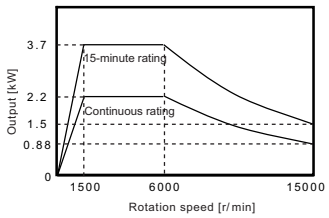
(*2) The value for the short-time rated output is shown for the required cooling capacity. Install a cooling jacket around the stator and use fluid cooling (oil cooling).

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

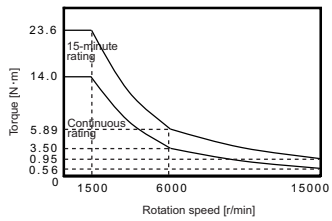
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Output at steady state - rotation speed characteristics



Torque at steady state-rotation speed characteristics



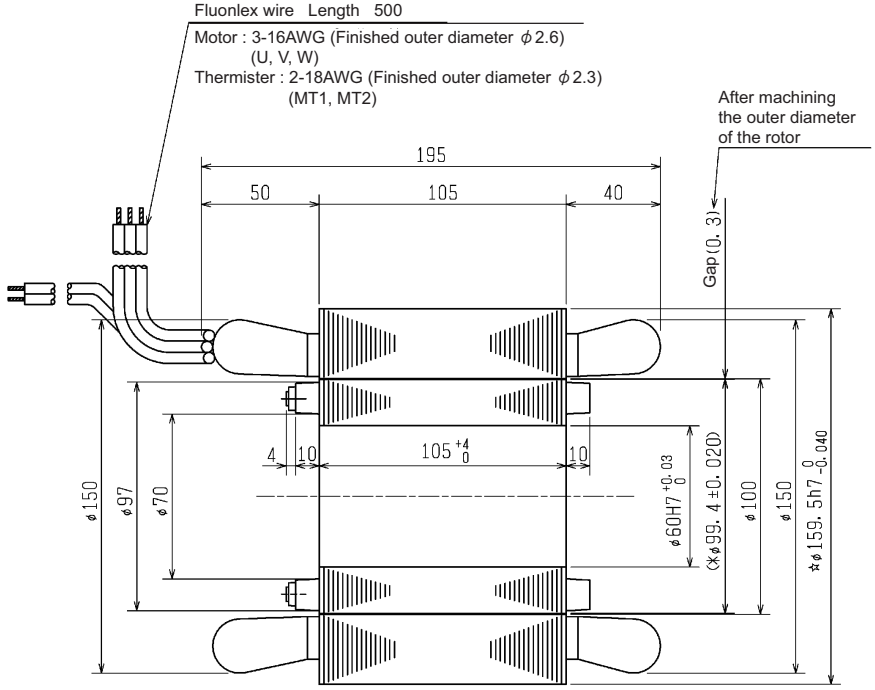
Output at acceleration/deceleration-rotation speed characteristics

120% of the 15-minute rating characteristics is output at the time of acceleration/deceleration.

Torque at acceleration/deceleration-rotation speed characteristics

120% of the 15-minute rating characteristics is torque at the time of acceleration/deceleration.

Outline dimension drawings [Unit : mm]



☆ These dimensions are the dimensions after machine machining.
* Apply finishing machining after carrying out shrink-fitting to the applicable shaft to realize these dimensions.
( ) These are reference values.

Built-in IM spindle motor

SJ-2B4207T

Specifications

Item		Specifications
Compatible spindle drive unit (*1)		MDS-D-SP-160
AC reactor for spindle motor		-
Coil changeover		-
Output capacity[kW]	Continuous rated output	5.5
	Short time rated output	7.5(15-minute rating)
	Standard output during acceleration/deceleration	7.5
	Actual acceleration/deceleration output (*3)	9
Base rotation speed	Continuous[r/min]	3000
	Short time[r/min]	3000
Maximum rotation speed[r/min]		10000
Frame No.		100-105
Torque (Base rotation speed)	Continuous[N・m]	17.5
	Short time[N・m]	23.9
Rotor GD^2 [kg・m^2]		0.027
Rotor inertia moment[kg・m^2]		0.0068
Mass	Stator[kg]	10
	Rotor[kg]	4.1
Overload capacity (for one minute)		120% of short-time rated output
Ambient temperature[°C]		0 to 40
Heat-resistant class		F(155°C)
Tolerable vibration		Maximum stationary tolerable value 9.8m/s^2(1G), Momentary stationary tolerable value 29.4m/s^2(3G)
Required cooling capacity (*2)[W]		1090
Cooling oil amount[l/min (20°C)]		5

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

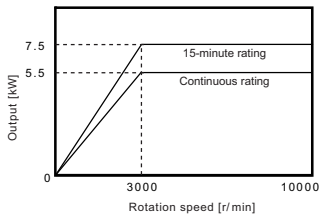
(*2) The value for the short-time rated output is shown for the required cooling capacity. Install a cooling jacket around the stator and use fluid cooling (oil cooling).

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

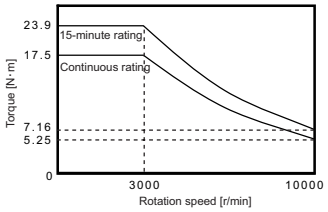
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Output at steady state - rotation speed characteristics



Torque at steady state-rotation speed characteristics



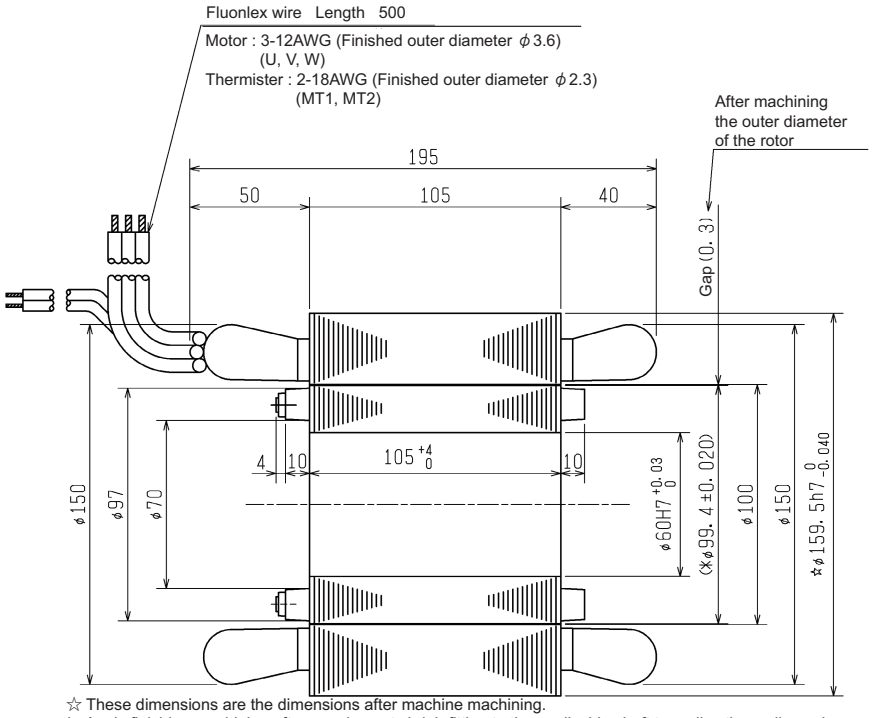
Output at acceleration/deceleration-rotation speed characteristics

120% of the 15-minute rating characteristics is output at the time of acceleration/deceleration.

Torque at acceleration/deceleration-rotation speed characteristics

120% of the 15-minute rating characteristics is torque at the time of acceleration/deceleration.

Outline dimension drawings [Unit : mm]



☆ These dimensions are the dimensions after machine machining.
* Apply finishing machining after carrying out shrink-fitting to the applicable shaft to realize these dimensions.
( ) These are reference values.

Built-in IM spindle motor

SJ-2B4215T

Specifications

Item		Specifications
Compatible spindle drive unit (*1)		MDS-D-SP-200
AC reactor for spindle motor		-
Coil changeover		-
Output capacity[kW]	Continuous rated output	3.7
	Short time rated output	5.5(15-minute rating)
	Standard output during acceleration/deceleration	11
	Actual acceleration/deceleration output (*3)	13.2
Base rotation speed	Continuous[r/min]	1500
	Short time[r/min]	1500
Maximum rotation speed[r/min]		15000
Frame No.		100-135
Torque (Base rotation speed)	Continuous[N・m]	23.6
	Short time[N・m]	35.0
Rotor GD^2 [kg・m^2]		0.034
Rotor inertia moment[kg・m^2]		0.0085
Mass	Stator[kg]	13
	Rotor[kg]	5.1
Overload capacity (for one minute)		120% of short-time rated output
Ambient temperature[°C]		0 to 40
Heat-resistant class		F(155°C)
Tolerable vibration		Maximum stationary tolerable value 9.8m/s^2(1G), Momentary stationary tolerable value 29.4m/s^2(3G)
Required cooling capacity (*2)[W]		1240
Cooling oil amount[l/min (20°C)]		5

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

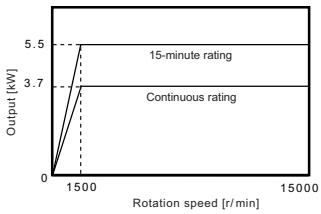
(*2) The value for the short-time rated output is shown for the required cooling capacity. Install a cooling jacket around the stator and use fluid cooling (oil cooling).

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

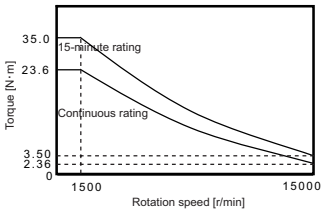
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

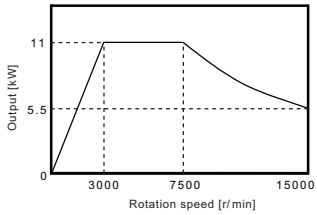
Output at steady state - rotation speed characteristics



Torque at steady state-rotation speed characteristics

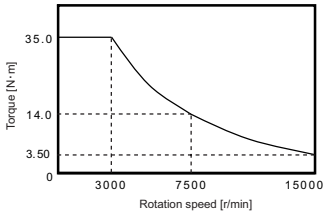


Output at acceleration/deceleration-rotation speed characteristics



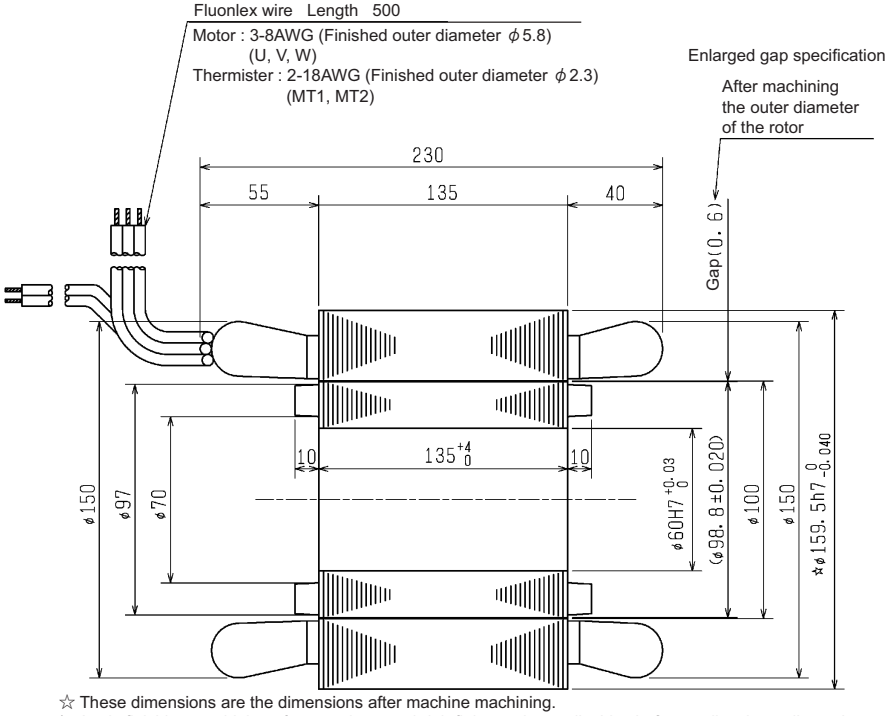
120% of this characteristics is output at the time of actual acceleration/deceleration.

Torque at acceleration/deceleration-rotation speed characteristics



120% of this characteristics is torque at the time of actual acceleration/deceleration.

Outline dimension drawings [Unit : mm]



☆ These dimensions are the dimensions after machine machining.
* Apply finishing machining after carrying out shrink-fitting to the applicable shaft to realize these dimensions.
( ) These are reference values.

Built-in IM spindle motor

SJ-2B4203T

Specifications

Item		Specifications
Compatible spindle drive unit (*1)		MDS-D-SP-80
AC reactor for spindle motor		-
Coil changeover		-
Output capacity[kW]	Continuous rated output	3.7
	Short time rated output	5.5(15-minute rating)
	Standard output during acceleration/deceleration	5.5
	Actual acceleration/deceleration output (*3)	6.6
Base rotation speed	Continuous[r/min]	1500
	Short time[r/min]	1500
Maximum rotation speed[r/min]		15000
Frame No.		100-135
Torque (Base rotation speed)	Continuous[N・m]	23.6
	Short time[N・m]	35.0
Rotor GD^2 [kg・m^2]		0.035
Rotor inertia moment[kg・m^2]		0.0088
Mass	Stator[kg]	13
	Rotor[kg]	5.2
Overload capacity (for one minute)		120% of short-time rated output
Ambient temperature[°C]		0 to 40
Heat-resistant class		F(155°C)
Tolerable vibration		Maximum stationary tolerable value 9.8m/s^2(1G), Momentary stationary tolerable value 29.4m/s^2(3G)
Required cooling capacity (*2)[W]		1180
Cooling oil amount[l/min (20°C)]		5

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

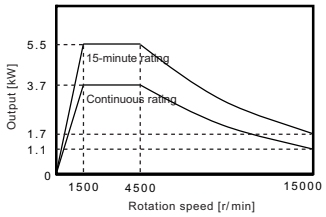
(*2) The value for the short-time rated output is shown for the required cooling capacity. Install a cooling jacket around the stator and use fluid cooling (oil cooling).

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

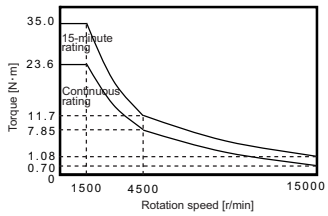
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Output at steady state - rotation speed characteristics



Torque at steady state-rotation speed characteristics



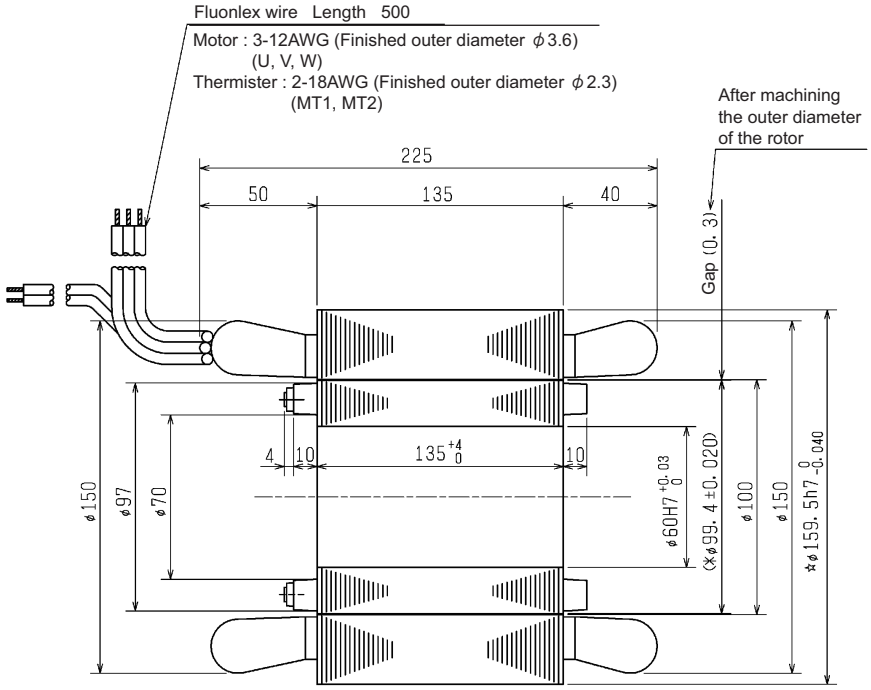
Output at acceleration/deceleration-rotation speed characteristics

120% of the 15-minute rating characteristics is output at the time of acceleration/deceleration.

Torque at acceleration/deceleration-rotation speed characteristics

120% of the 15-minute rating characteristics is torque at the time of acceleration/deceleration.

Outline dimension drawings [Unit : mm]



☆ These dimensions are the dimensions after machine machining.
* Apply finishing machining after carrying out shrink-fitting to the applicable shaft to realize these dimensions.
( ) These are reference values.

Built-in IM spindle motor

SJ-2B4211T

Specifications

Item		Specifications
Compatible spindle drive unit (*1)		MDS-D-SP-160
AC reactor for spindle motor		-
Coil changeover		-
Output capacity[kW]	Continuous rated output	3.7
	Short time rated output	5.5(15-minute rating)
	Standard output during acceleration/deceleration	5.5
	Actual acceleration/deceleration output (*3)	6.6
Base rotation speed	Continuous[r/min]	1500
	Short time[r/min]	1500
Maximum rotation speed[r/min]		10000
Frame No.		100-135
Torque (Base rotation speed)	Continuous[N・m]	23.6
	Short time[N・m]	35.0
Rotor GD^2 [kg・m^2]		0.035
Rotor inertia moment[kg・m^2]		0.0088
Mass	Stator[kg]	13
	Rotor[kg]	5.2
Overload capacity (for one minute)		120% of short-time rated output
Ambient temperature[°C]		0 to 40
Heat-resistant class		F(155°C)
Tolerable vibration		Maximum stationary tolerable value 9.8m/s^2(1G), Momentary stationary tolerable value 29.4m/s^2(3G)
Required cooling capacity (*2)[W]		1190
Cooling oil amount[l/min (20°C)]		5

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

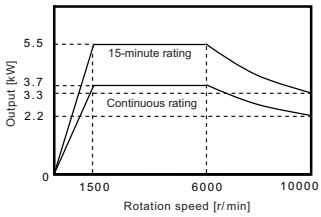
(*2) The value for the short-time rated output is shown for the required cooling capacity. Install a cooling jacket around the stator and use fluid cooling (oil cooling).

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

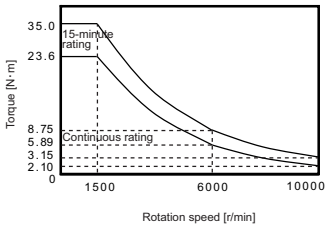
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Output at steady state - rotation speed characteristics



Torque at steady state-rotation speed characteristics



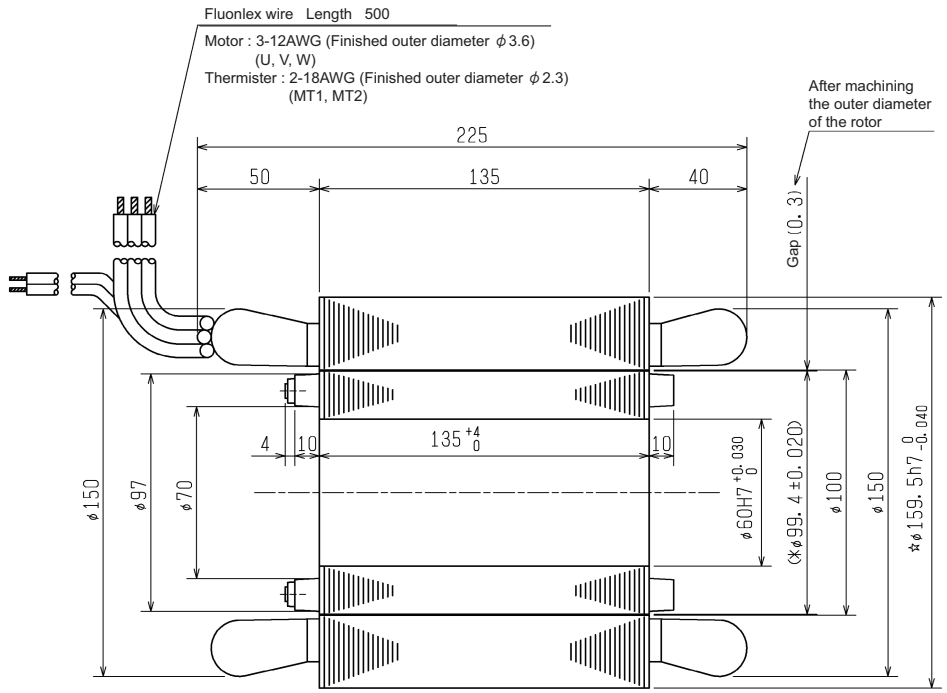
Output at acceleration/deceleration-rotation speed characteristics

120% of the 15-minute rating characteristics is output at the time of acceleration/deceleration.

Torque at acceleration/deceleration-rotation speed characteristics

120% of the 15-minute rating characteristics is torque at the time of acceleration/deceleration.

Outline dimension drawings [Unit : mm]



☆ These dimensions are the dimensions after machine machining.
* Apply finishing machining after carrying out shrink-fitting to the applicable shaft to realize these dimensions.
( ) These are reference values.

Built-in IM spindle motor

SJ-2B4219T

Specifications

Item		Specifications
Compatible spindle drive unit (*1)		MDS-D-SP-160
AC reactor for spindle motor		-
Coil changeover		-
Output capacity[kW]	Continuous rated output	3.7
	Short time rated output	7.5(15-minute rating)
	Standard output during acceleration/deceleration	7.5
	Actual acceleration/deceleration output (*3)	9
Base rotation speed	Continuous[r/min]	1500
	Short time[r/min]	2000
Maximum rotation speed[r/min]		15000
Frame No.		100-135
Torque (Base rotation speed)	Continuous[N・m]	23.6
	Short time[N・m]	35.8
Rotor GD^2 [kg・m^2]		0.035
Rotor inertia moment[kg・m^2]		0.0088
Mass	Stator[kg]	13
	Rotor[kg]	5.2
Overload capacity (for one minute)		120% of short-time rated output
Ambient temperature[°C]		0 to 40
Heat-resistant class		F(155°C)
Tolerable vibration		Maximum stationary tolerable value 9.8m/s^2(1G), Momentary stationary tolerable value 29.4m/s^2(3G)
Required cooling capacity (*2)[W]		1340
Cooling oil amount[l/min (20°C)]		5

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

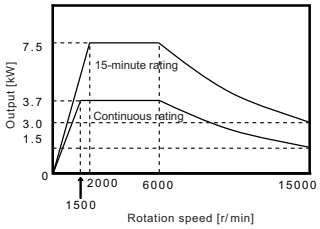
(*2) The value for the short-time rated output is shown for the required cooling capacity. Install a cooling jacket around the stator and use fluid cooling (oil cooling).

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

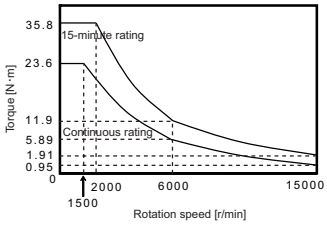
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Output at steady state - rotation speed characteristics



Torque at steady state-rotation speed characteristics



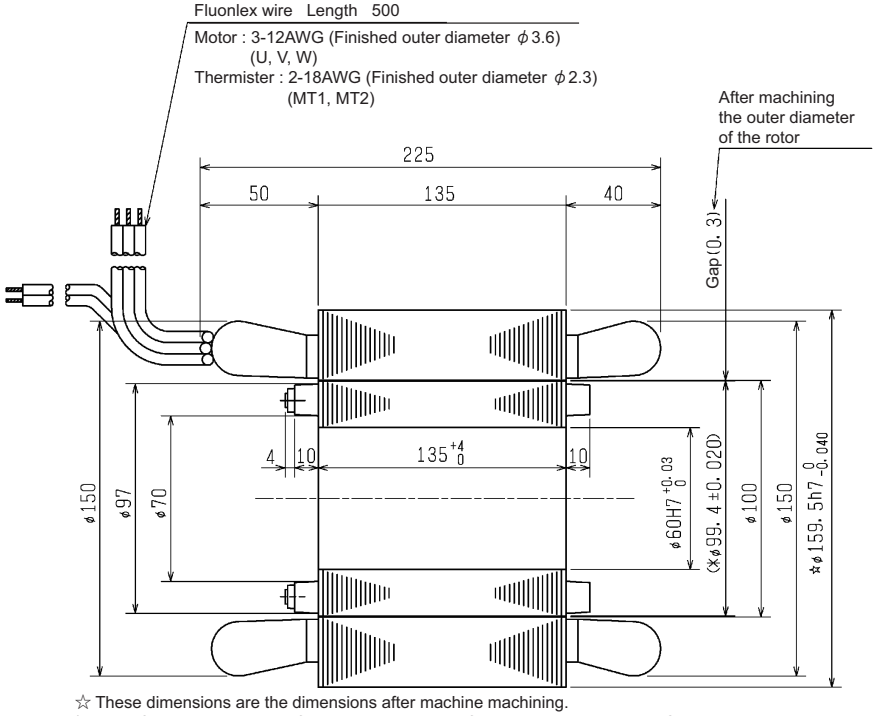
Output at acceleration/deceleration-rotation speed characteristics

120% of the 15-minute rating characteristics is output at the time of acceleration/deceleration.

Torque at acceleration/deceleration-rotation speed characteristics

120% of the 15-minute rating characteristics is torque at the time of acceleration/deceleration.

Outline dimension drawings [Unit : mm]



☆ These dimensions are the dimensions after machine machining.
* Apply finishing machining after carrying out shrink-fitting to the applicable shaft to realize these dimensions.
( ) These are reference values.

Built-in IM spindle motor

SJ-2B4310T

Specifications

Item		Specifications
Compatible spindle drive unit (*1)		MDS-D-SP-80
AC reactor for spindle motor		-
Coil changeover		-
Output capacity[kW]	Continuous rated output	3.7
	Short time rated output	5.5(30-minute rating)
	Standard output during acceleration/deceleration	5.5
	Actual acceleration/deceleration output (*3)	6.6
Base rotation speed	Continuous[r/min]	1750
	Short time[r/min]	1750
Maximum rotation speed[r/min]		8000
Frame No.		112-125
Torque (Base rotation speed)	Continuous[N・m]	20.2
	Short time[N・m]	30.0
Rotor GD^2 [kg・m^2]		0.051
Rotor inertia moment[kg・m^2]		0.0128
Mass	Stator[kg]	15
	Rotor[kg]	5.6
Overload capacity (for one minute)		120% of short-time rated output
Ambient temperature[°C]		0 to 40
Heat-resistant class		F(155°C)
Tolerable vibration		Maximum stationary tolerable value 9.8m/s^2(1G), Momentary stationary tolerable value 29.4m/s^2(3G)
Required cooling capacity (*2)[W]		910
Cooling oil amount[l/min (20°C)]		5

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

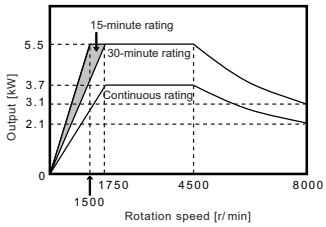
(*2) The value for the short-time rated output is shown for the required cooling capacity. Install a cooling jacket around the stator and use fluid cooling (oil cooling).

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

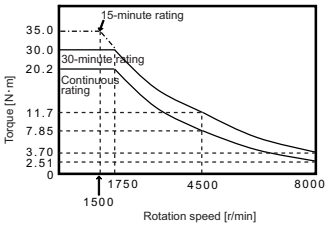
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Output at steady state - rotation speed characteristics



Torque at steady state-rotation speed characteristics



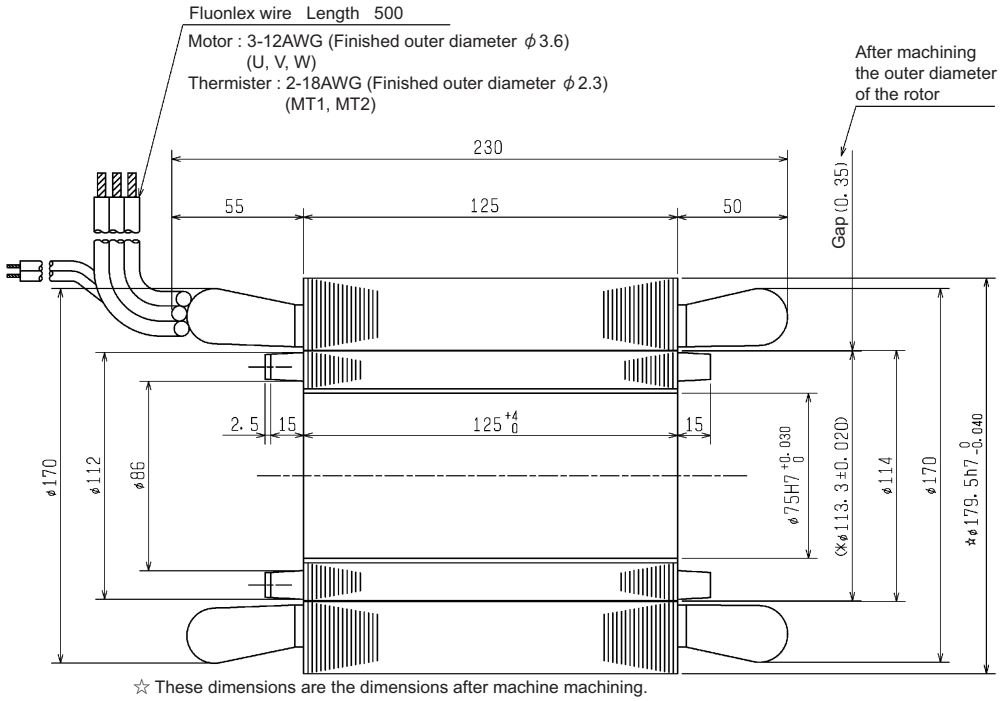
Output at acceleration/deceleration-rotation speed characteristics

120% of the 15-minute rating characteristics is output at the time of acceleration/deceleration.

Torque at acceleration/deceleration-rotation speed characteristics

120% of the 15-minute rating characteristics is torque at the time of acceleration/deceleration.

Outline dimension drawings [Unit : mm]



☆ These dimensions are the dimensions after machine machining.
* Apply finishing machining after carrying out shrink-fitting to the applicable shaft to realize these dimensions.
( ) These are reference values.

Built-in IM spindle motor

SJ-2B4301T

Specifications

Item		Specifications
Compatible spindle drive unit (*1)		MDS-D-SP-160
AC reactor for spindle motor		-
Coil changeover		-
Output capacity[kW]	Continuous rated output	3.7
	Short time rated output	5.5(30-minute rating)
	Standard output during acceleration/deceleration	7.5
	Actual acceleration/deceleration output (*3)	9
Base rotation speed	Continuous[r/min]	1100
	Short time[r/min]	1100
Maximum rotation speed[r/min]		12000
Frame No.		112-125
Torque (Base rotation speed)	Continuous[N・m]	32.1
	Short time[N・m]	47.7
Rotor GD^2 [kg・m^2]		0.051
Rotor inertia moment[kg・m^2]		0.0128
Mass	Stator[kg]	15
	Rotor[kg]	5.6
Overload capacity (for one minute)		120% of short-time rated output
Ambient temperature[°C]		0 to 40
Heat-resistant class		F(155°C)
Tolerable vibration		Maximum stationary tolerable value 9.8m/s^2(1G), Momentary stationary tolerable value 29.4m/s^2(3G)
Required cooling capacity (*2)[W]		1510
Cooling oil amount[l/min (20°C)]		5

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

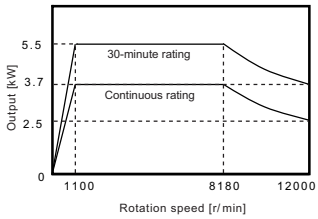
(*2) The value for the short-time rated output is shown for the required cooling capacity. Install a cooling jacket around the stator and use fluid cooling (oil cooling).

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

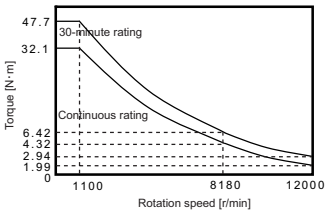
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

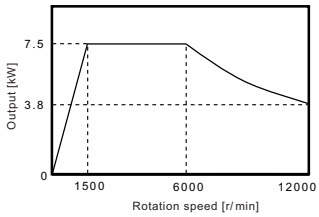
Output at steady state - rotation speed characteristics



Torque at steady state-rotation speed characteristics

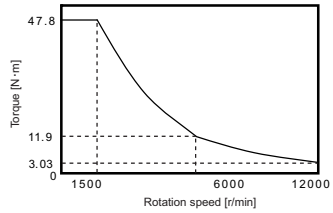


Output at acceleration/deceleration-rotation speed characteristics



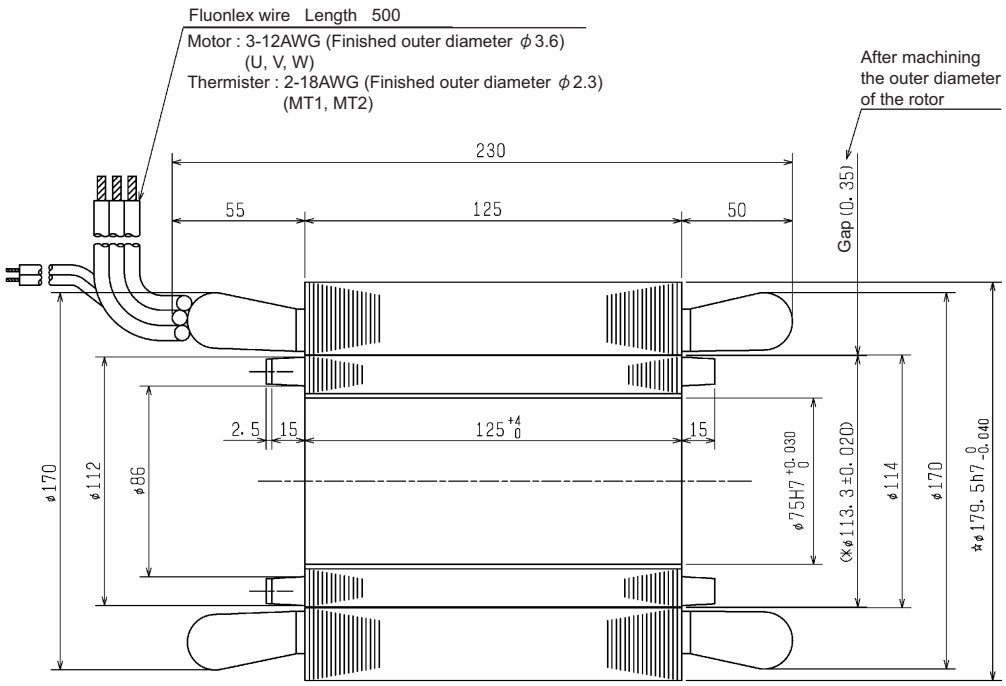
120% of this characteristics is output at the time of actual acceleration/deceleration.

Torque at acceleration/deceleration-rotation speed characteristics



120% of this characteristics is torque at the time of actual acceleration/deceleration.

Outline dimension drawings [Unit : mm]



☆ These dimensions are the dimensions after machine machining.

* Apply finishing machining after carrying out shrink-fitting to the applicable shaft to realize these dimensions.

( ) These are reference values.

Built-in IM spindle motor

SJ-2B4327T

Specifications

Item		Specifications
Compatible spindle drive unit (*1)		MDS-D-SP-160
AC reactor for spindle motor		-
Coil changeover		-
Output capacity[kW]	Continuous rated output	5.5
	Short time rated output	7.5(30-minute rating)
	Standard output during acceleration/deceleration	11
	Actual acceleration/deceleration output (*3)	13.2
Base rotation speed	Continuous[r/min]	1700
	Short time[r/min]	1700
Maximum rotation speed[r/min]		8000
Frame No.		112-170
Torque (Base rotation speed)	Continuous[N・m]	30.9
	Short time[N・m]	42.1
Rotor GD^2 [kg・m^2]		0.070
Rotor inertia moment[kg・m^2]		0.0175
Mass	Stator[kg]	20
	Rotor[kg]	7.6
Overload capacity (for one minute)		120% of short-time rated output
Ambient temperature[°C]		0 to 40
Heat-resistant class		F(155°C)
Tolerable vibration		Maximum stationary tolerable value 9.8m/s^2(1G), Momentary stationary tolerable value 29.4m/s^2(3G)
Required cooling capacity (*2)[W]		1140
Cooling oil amount[l/min (20°C)]		5

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

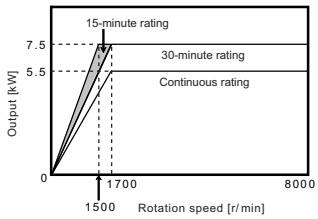
(*2) The value for the short-time rated output is shown for the required cooling capacity. Install a cooling jacket around the stator and use fluid cooling (oil cooling).

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

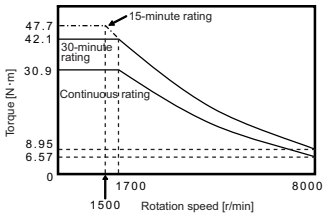
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

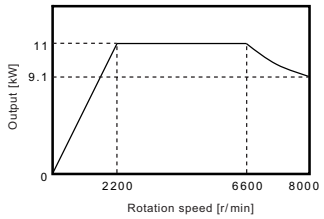
Output at steady state - rotation speed characteristics



Torque at steady state-rotation speed characteristics

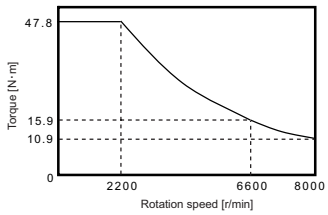


Output at acceleration/deceleration-rotation speed characteristics



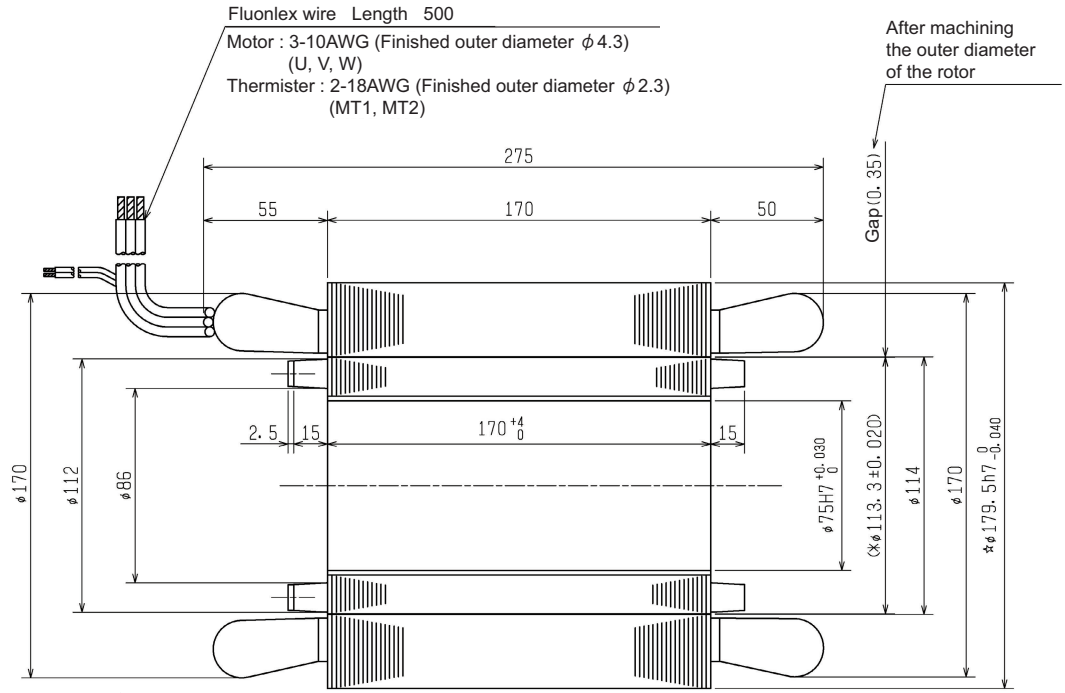
120% of this characteristics is output at the time of actual acceleration/deceleration.

Torque at acceleration/deceleration-rotation speed characteristics



120% of this characteristics is torque at the time of actual acceleration/deceleration.

Outline dimension drawings [Unit : mm]



☆ These dimensions are the dimensions after machine machining.

* Apply finishing machining after carrying out shrink-fitting to the applicable shaft to realize these dimensions.

( ) These are reference values.

Built-in IM spindle motor

SJ-2B4340T

Specifications

Item		Specifications
Compatible spindle drive unit (*1)		MDS-D-SP-200
AC reactor for spindle motor		-
Coil changeover		-
Output capacity[kW]	Continuous rated output	7.5
	Short time rated output	11(30-minute rating)
	Standard output during acceleration/deceleration	11
	Actual acceleration/deceleration output (*3)	13.2
Base rotation speed	Continuous[r/min]	1500
	Short time[r/min]	1500
Maximum rotation speed[r/min]		8000
Frame No.		112-170
Torque (Base rotation speed)	Continuous[N・m]	47.7
	Short time[N・m]	70.0
Rotor GD^2 [kg・m^2]		0.070
Rotor inertia moment[kg・m^2]		0.0175
Mass	Stator[kg]	20
	Rotor[kg]	7.6
Overload capacity (for one minute)		120% of short-time rated output
Ambient temperature[°C]		0 to 40
Heat-resistant class		F(155°C)
Tolerable vibration		Maximum stationary tolerable value 9.8m/s^2(1G), Momentary stationary tolerable value 29.4m/s^2(3G)
Required cooling capacity (*2)[W]		2500
Cooling oil amount[l/min (20°C)]		10

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

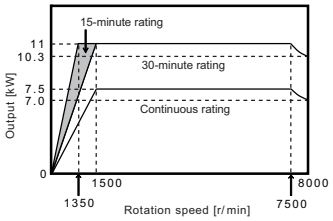
(*2) The value for the short-time rated output is shown for the required cooling capacity. Install a cooling jacket around the stator and use fluid cooling (oil cooling).

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

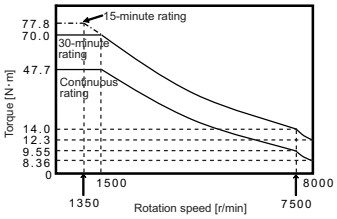
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Output at steady state - rotation speed characteristics



Torque at steady state-rotation speed characteristics



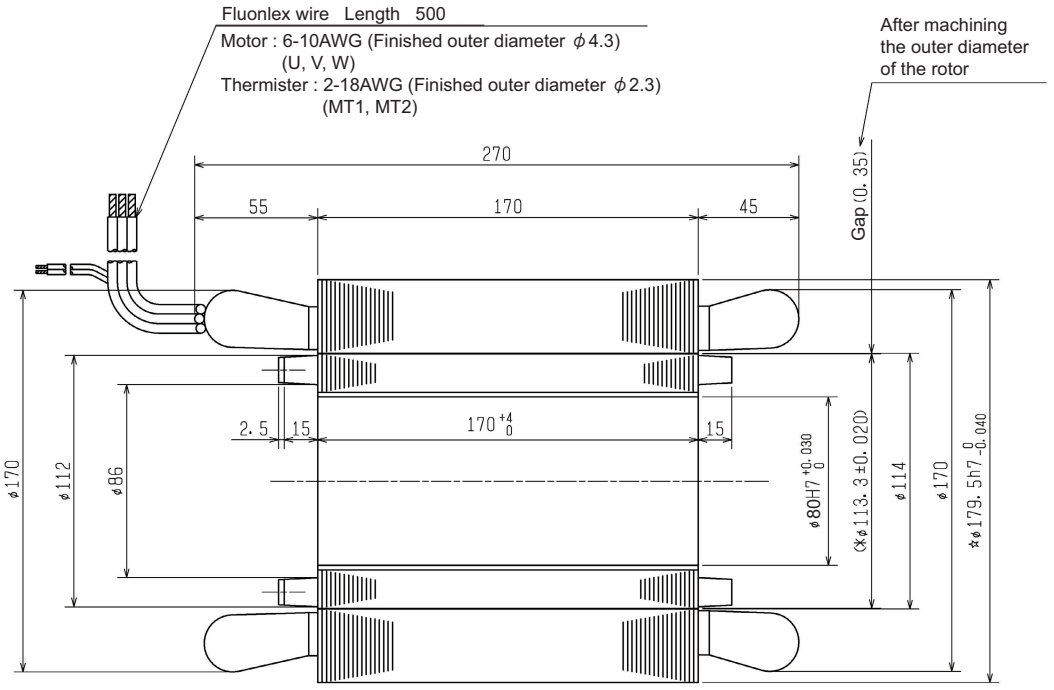
Output at acceleration/deceleration-rotation speed characteristics

120% of the 15-minute rating characteristics is output at the time of acceleration/deceleration.

Torque at acceleration/deceleration-rotation speed characteristics

120% of the 15-minute rating characteristics is torque at the time of acceleration/deceleration.

Outline dimension drawings [Unit : mm]



☆ These dimensions are the dimensions after machine machining.

* Apply finishing machining after carrying out shrink-fitting to the applicable shaft to realize these dimensions.

( ) These are reference values.

Built-in IM spindle motor

SJ-2B4313TK

Specifications

Item		Specifications	
Compatible spindle drive unit (*1)		MDS-D-SP-160	
AC reactor for spindle motor		-	
Coil changeover		Low-speed coil	High-speed coil
Output capacity[kW]	Continuous rated output	5.5	5.5
	Short time rated output	7.5(30-minute rating)	7.5(30-minute rating)
	Standard output during acceleration/deceleration	7.5	
	Actual acceleration/deceleration output (*3)	9	
Base rotation speed	Continuous[r/min]	1000	2100
	Short time[r/min]	1000	2100
Maximum rotation speed[r/min]		2100	12000
Frame No.		112-170	
Torque (Base rotation speed)	Continuous[N・m]	52.5	25.0
	Short time[N・m]	71.6	34.1
Rotor GD^2 [kg・m^2]		0.070	
Rotor inertia moment[kg・m^2]		0.0175	
Mass	Stator[kg]	20	
	Rotor[kg]	7.6	
Overload capacity (for one minute)		120% of short-time rated output	
Ambient temperature[°C]		0 to 40	
Heat-resistant class		F(155°C)	
Tolerable vibration		Maximum stationary tolerable value 9.8m/s^2(1G), Momentary stationary tolerable value 29.4m/s^2(3G)	
Required cooling capacity (*2)[W]		2200	
Cooling oil amount[l/min (20°C)]		10	

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

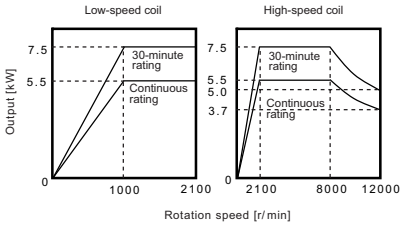
(*2) The value for the short-time rated output is shown for the required cooling capacity. Install a cooling jacket around the stator and use fluid cooling (oil cooling).

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

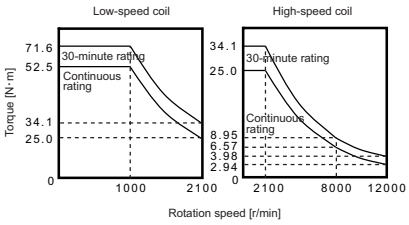
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Output at steady state - rotation speed characteristics



Torque at steady state-rotation speed characteristics



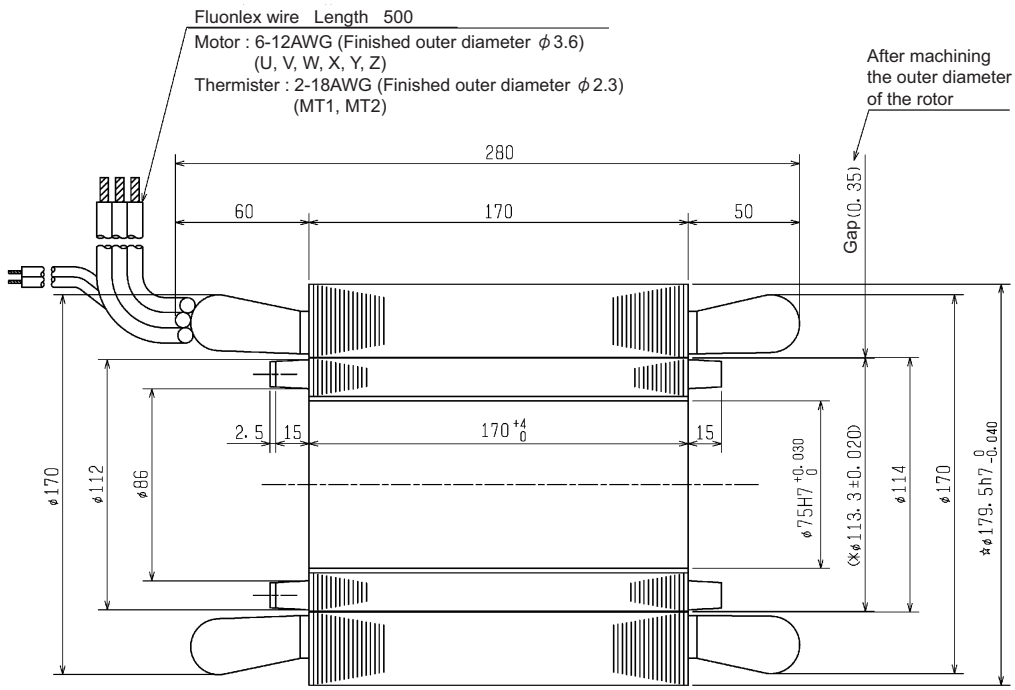
Output at acceleration/deceleration-rotation speed characteristics

120% of the 30-minute rating characteristics is output at the time of acceleration/deceleration.

Torque at acceleration/deceleration-rotation speed characteristics

120% of the 30-minute rating characteristics is torque at the time of acceleration/deceleration.

Outline dimension drawings [Unit : mm]



☆ These dimensions are the dimensions after machine machining.
* Apply finishing machining after carrying out shrink-fitting to the applicable shaft to realize these dimensions.
( ) These are reference values.

Built-in IM spindle motor

SJ-2B4323TK

Specifications

Item		Specifications	
Compatible spindle drive unit (*1)		MDS-D-SP-200	
AC reactor for spindle motor		-	
Coil changeover		Low-speed coil	High-speed coil
Output capacity[kW]	Continuous rated output	5.5	5.5
	Short time rated output	7.5(30-minute rating)	7.5(30-minute rating)
	Standard output during acceleration/deceleration	11	
	Actual acceleration/deceleration output (*3)	13.2	
Base rotation speed	Continuous[r/min]	1000	2000
	Short time[r/min]	1000	2000
Maximum rotation speed[r/min]		2000	12000
Frame No.		112-170	
Torque (Base rotation speed)	Continuous[N・m]	52.5	26.3
	Short time[N・m]	71.6	35.8
Rotor GD^2 [kg・m^2]		0.070	
Rotor inertia moment[kg・m^2]		0.0175	
Mass	Stator[kg]	20	
	Rotor[kg]	7.6	
Overload capacity (for one minute)		120% of short-time rated output	
Ambient temperature[°C]		0 to 40	
Heat-resistant class		F(155°C)	
Tolerable vibration		Maximum stationary tolerable value 9.8m/s^2(1G), Momentary stationary tolerable value 29.4m/s^2(3G)	
Required cooling capacity (*2)[W]		4400	
Cooling oil amount[l/min (20°C)]		10	

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

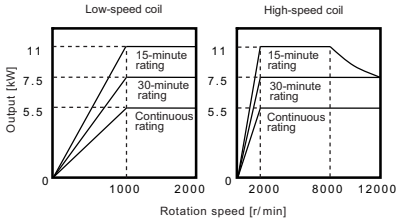
(*2) The value for the short-time rated output is shown for the required cooling capacity. Install a cooling jacket around the stator and use fluid cooling (oil cooling).

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

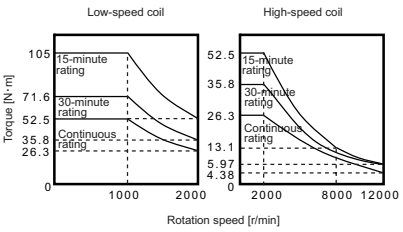
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Output at steady state - rotation speed characteristics



Torque at steady state-rotation speed characteristics



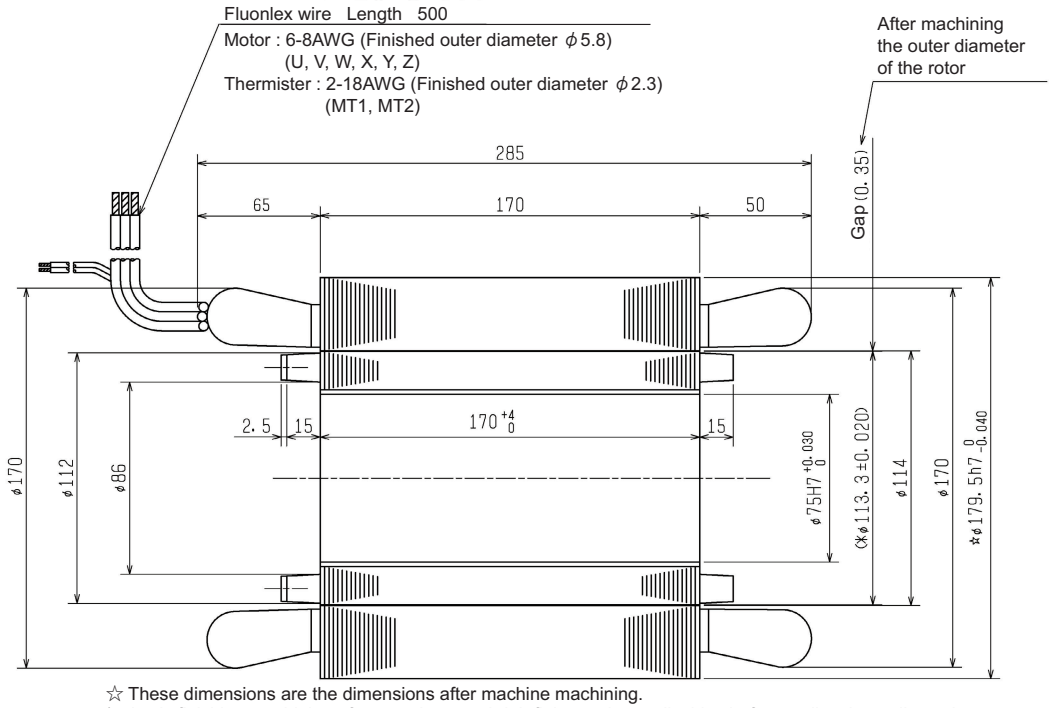
Output at acceleration/deceleration-rotation speed characteristics

120% of the 10-minute rating characteristics is output at the time of acceleration/deceleration.

Torque at acceleration/deceleration-rotation speed characteristics

120% of the 10-minute rating characteristics is torque at the time of acceleration/deceleration.

Outline dimension drawings [Unit : mm]



☆ These dimensions are the dimensions after machine machining.
* Apply finishing machining after carrying out shrink-fitting to the applicable shaft to realize these dimensions.
( ) These are reference values.

Built-in IM spindle motor

SJ-2B4325TK

Specifications

Item		Specifications	
Compatible spindle drive unit (*1)		MDS-D-SP-240	
AC reactor for spindle motor		-	
Coil changeover		Low-speed coil	High-speed coil
Output capacity[kW]	Continuous rated output	11	15
	Short time rated output	15(15-minute rating)	22(15-minute rating)
	Standard output during acceleration/deceleration	15	22
	Actual acceleration/deceleration output (*3)	18	26.4
Base rotation speed	Continuous[r/min]	2000	4700
	Short time[r/min]	2000	4700
Maximum rotation speed[r/min]		5200	12000
Frame No.		112-170	
Torque (Base rotation speed)	Continuous[N・m]	52.5	30.5
	Short time[N・m]	71.6	44.7
Rotor GD^2 [kg・m^2]		0.070	
Rotor inertia moment[kg・m^2]		0.0175	
Mass	Stator[kg]	20	
	Rotor[kg]	7.6	
Overload capacity (for one minute)		120% of short-time rated output	
Ambient temperature[°C]		0 to 40	
Heat-resistant class		F(155°C)	
Tolerable vibration		Maximum stationary tolerable value 9.8m/s^2(1G), Momentary stationary tolerable value 29.4m/s^2(3G)	
Required cooling capacity (*2)[W]		2640	
Cooling oil amount[l/min (20°C)]		10	

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

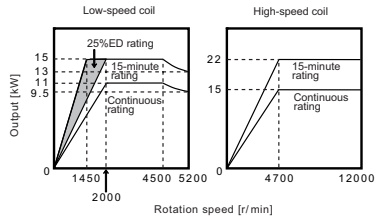
(*2) The value for the short-time rated output is shown for the required cooling capacity. Install a cooling jacket around the stator and use fluid cooling (oil cooling).

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

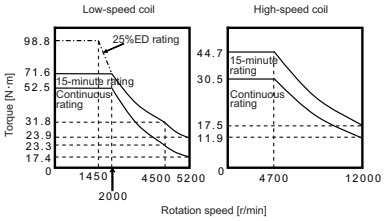
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Output at steady state - rotation speed characteristics



Torque at steady state-rotation speed characteristics



Output at acceleration/deceleration-rotation speed characteristics

Low-speed coil
120% of the 25%ED rating characteristics is output at the time of acceleration/deceleration.

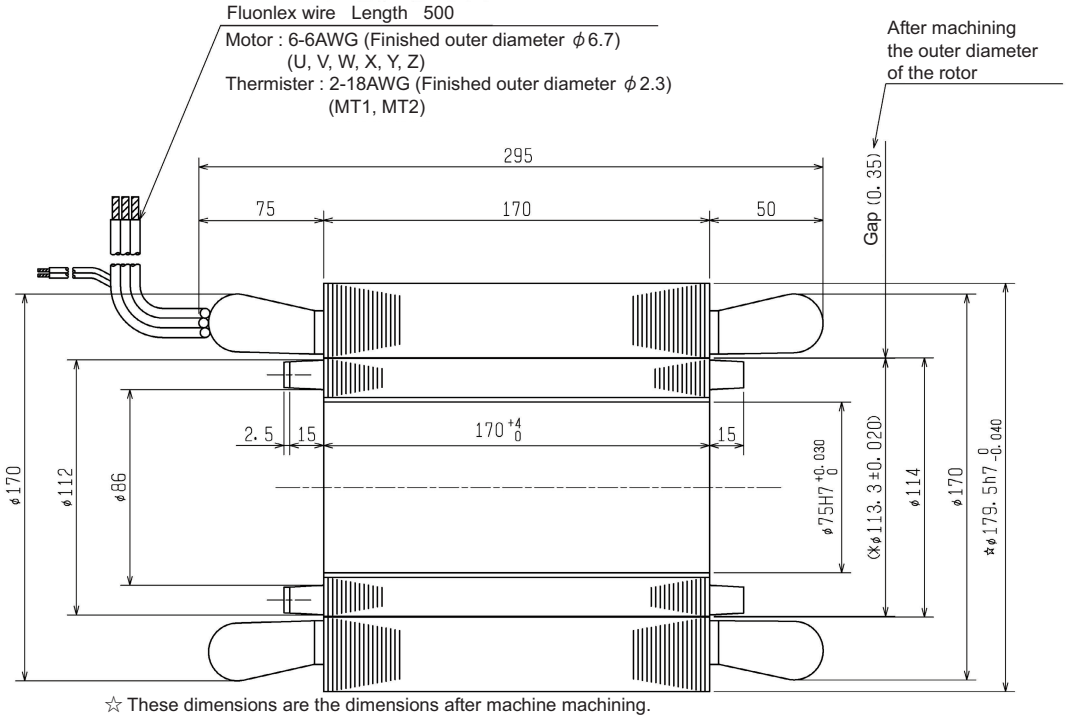
High-speed coil
120% of the 15-minute rating characteristics is output at the time of acceleration/deceleration.

Torque at acceleration/deceleration-rotation speed characteristics

Low-speed coil
120% of the 25%ED rating characteristics is torque at the time of acceleration/deceleration.

High-speed coil
120% of the 15-minute rating characteristics is torque at the time of acceleration/deceleration.

Outline dimension drawings [Unit : mm]



☆ These dimensions are the dimensions after machine machining.

* Apply finishing machining after carrying out shrink-fitting to the applicable shaft to realize these dimensions.

( ) These are reference values.

Built-in IM spindle motor

SJ-2B4303TK

Specifications

Item		Specifications	
Compatible spindle drive unit (*1)		MDS-D-SP-200	
AC reactor for spindle motor		-	
Coil changeover		Low-speed coil	High-speed coil
Output capacity[kW]	Continuous rated output	5.5	5.5
	Short time rated output	7.5(30-minute rating)	7.5(30-minute rating)
	Standard output during acceleration/deceleration	11	15
	Actual acceleration/deceleration output (*3)	13.2	18
Base rotation speed	Continuous[r/min]	680	1250
	Short time[r/min]	680	1250
Maximum rotation speed[r/min]		3000	12000
Frame No.		112-220	
Torque (Base rotation speed)	Continuous[N・m]	77.2	42.0
	Short time[N・m]	105	57.3
Rotor GD^2 [kg・m^2]		0.090	
Rotor inertia moment[kg・m^2]		0.0225	
Mass	Stator[kg]	26	
	Rotor[kg]	9.8	
Overload capacity (for one minute)		120% of short-time rated output	
Ambient temperature[°C]		0 to 40	
Heat-resistant class		F(155°C)	
Tolerable vibration		Maximum stationary tolerable value 9.8m/s^2(1G), Momentary stationary tolerable value 29.4m/s^2(3G)	
Required cooling capacity (*2)[W]		3200	
Cooling oil amount[l/min (20°C)]		10	

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

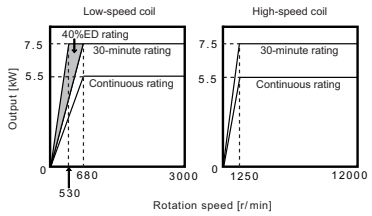
(*2) The value for the short-time rated output is shown for the required cooling capacity. Install a cooling jacket around the stator and use fluid cooling (oil cooling).

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

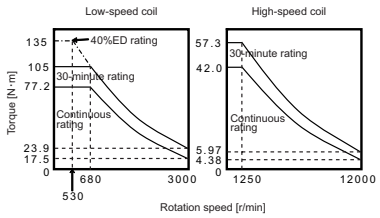
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

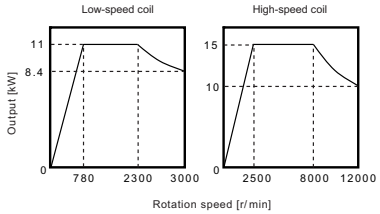
Output at steady state - rotation speed characteristics



Torque at steady state-rotation speed characteristics

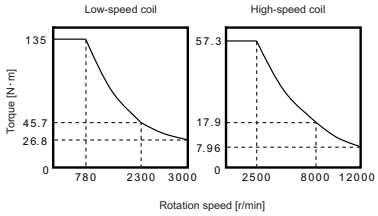


Output at acceleration/deceleration-rotation speed characteristics



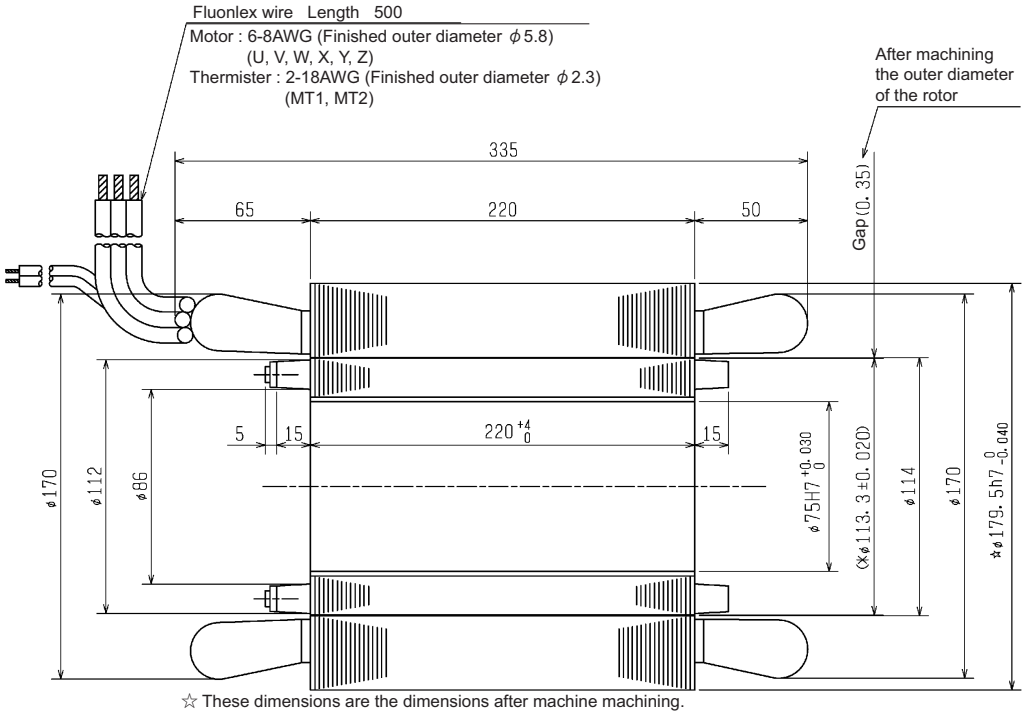
120% of this characteristics is output at the time of actual acceleration/deceleration.

Torque at acceleration/deceleration-rotation speed characteristics



120% of this characteristics is torque at the time of actual acceleration/deceleration.

Outline dimension drawings [Unit : mm]



☆ These dimensions are the dimensions after machine machining.

* Apply finishing machining after carrying out shrink-fitting to the applicable shaft to realize these dimensions.

( ) These are reference values.

Built-in IM spindle motor

SJ-2B4326TK

Specifications

Item		Specifications	
Compatible spindle drive unit (*1)		MDS-D-SP-240	
AC reactor for spindle motor		-	
Coil changeover		Low-speed coil	High-speed coil
Output capacity[kW]	Continuous rated output	7.5	7.5
	Short time rated output	11(30-minute rating)	11(30-minute rating)
	Standard output during acceleration/deceleration	15	18.5
	Actual acceleration/deceleration output (*3)	18	22.2
Base rotation speed	Continuous[r/min]	1000	1600
	Short time[r/min]	1000	1600
Maximum rotation speed[r/min]		2500	12000
Frame No.		112-220	
Torque (Base rotation speed)	Continuous[N・m]	71.6	44.8
	Short time[N・m]	105	65.7
Rotor GD^2 [kg・m^2]		0.090	
Rotor inertia moment[kg・m^2]		0.0225	
Mass	Stator[kg]	26	
	Rotor[kg]	9.8	
Overload capacity (for one minute)		120% of short-time rated output	
Ambient temperature[°C]		0 to 40	
Heat-resistant class		F(155°C)	
Tolerable vibration		Maximum stationary tolerable value 9.8m/s^2(1G), Momentary stationary tolerable value 29.4m/s^2(3G)	
Required cooling capacity (*2)[W]		3330	
Cooling oil amount[l/min (20°C)]		10	

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

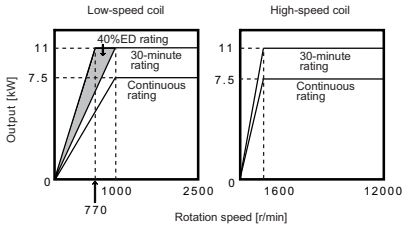
(*2) The value for the short-time rated output is shown for the required cooling capacity. Install a cooling jacket around the stator and use fluid cooling (oil cooling).

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

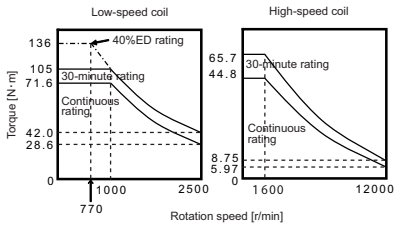
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

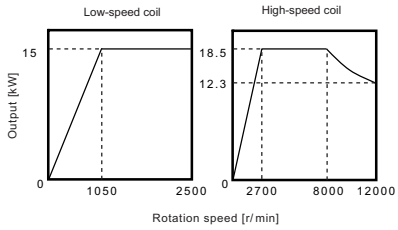
Output at steady state - rotation speed characteristics



Torque at steady state-rotation speed characteristics

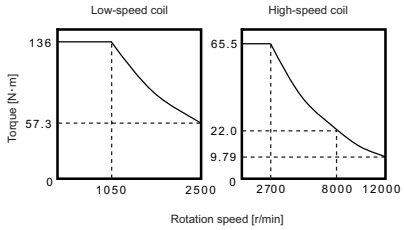


Output at acceleration/deceleration-rotation speed characteristics



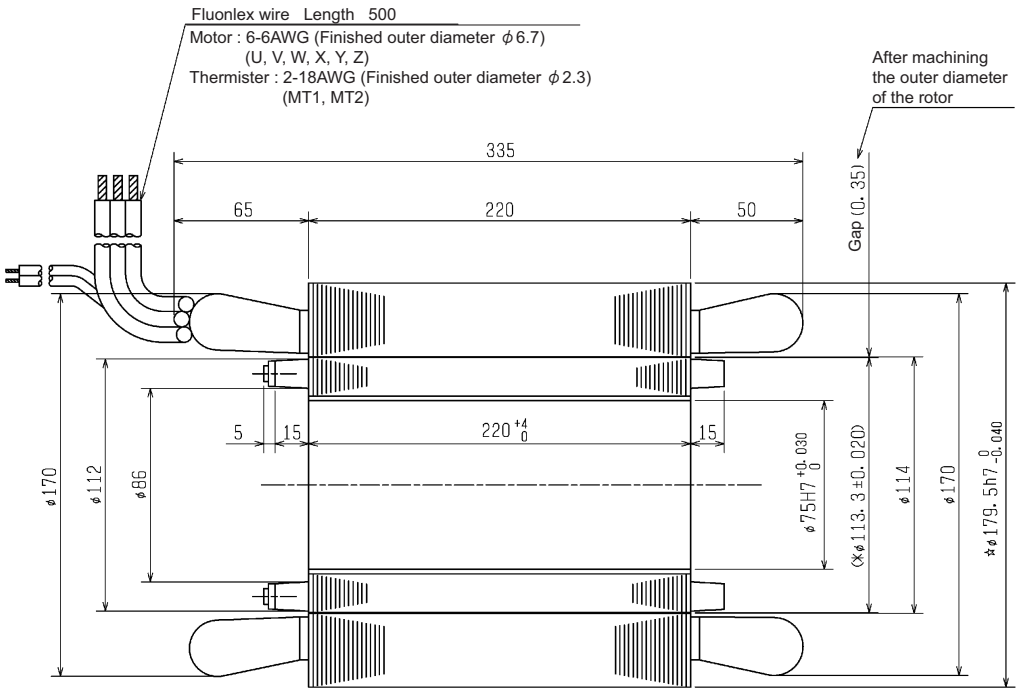
120% of this characteristics is output at the time of actual acceleration/deceleration.

Torque at acceleration/deceleration-rotation speed characteristics



120% of this characteristics is torque at the time of actual acceleration/deceleration.

Outline dimension drawings [Unit : mm]



☆ These dimensions are the dimensions after machine machining.

* Apply finishing machining after carrying out shrink-fitting to the applicable shaft to realize these dimensions.

( ) These are reference values.

Built-in IM spindle motor

SJ-2B4311TK

Specifications

Item		Specifications	
Compatible spindle drive unit (*1)		MDS-D-SP-320	
AC reactor for spindle motor		-	
Coil changeover		Low-speed coil	High-speed coil
Output capacity[kW]	Continuous rated output	15	18.5
	Short time rated output	18.5(15-minute rating)	22(15-minute rating)
	Standard output during acceleration/deceleration	22	30
	Actual acceleration/deceleration output (*3)	26.4	36
Base rotation speed	Continuous[r/min]	1500	2570
	Short time[r/min]	1500	2570
Maximum rotation speed[r/min]		3500	12000
Frame No.		112-220	
Torque (Base rotation speed)	Continuous[N・m]	95.5	68.7
	Short time[N・m]	118	81.7
Rotor GD^2 [kg・m^2]		0.090	
Rotor inertia moment[kg・m^2]		0.0225	
Mass	Stator[kg]	26	
	Rotor[kg]	9.8	
Overload capacity (for one minute)		120% of short-time rated output	
Ambient temperature[°C]		0 to 40	
Heat-resistant class		F(155°C)	
Tolerable vibration		Maximum stationary tolerable value 9.8m/s^2(1G), Momentary stationary tolerable value 29.4m/s^2(3G)	
Required cooling capacity (*2)[W]		4120	
Cooling oil amount[l/min (20°C)]		10	

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

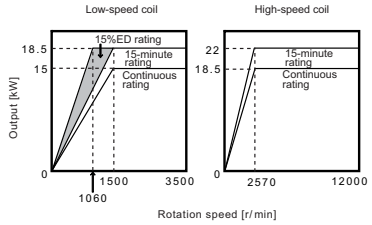
(*2) The value for the short-time rated output is shown for the required cooling capacity. Install a cooling jacket around the stator and use fluid cooling (oil cooling).

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

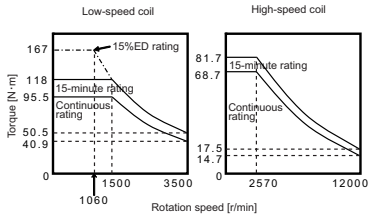
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

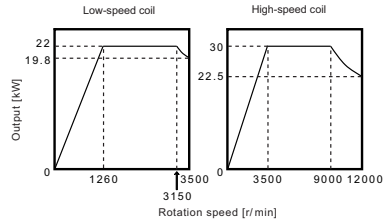
Output at steady state - rotation speed characteristics



Torque at steady state-rotation speed characteristics

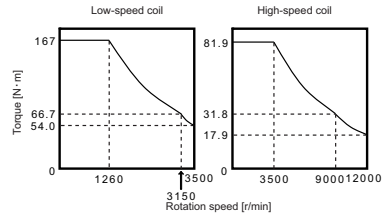


Output at acceleration/deceleration-rotation speed characteristics



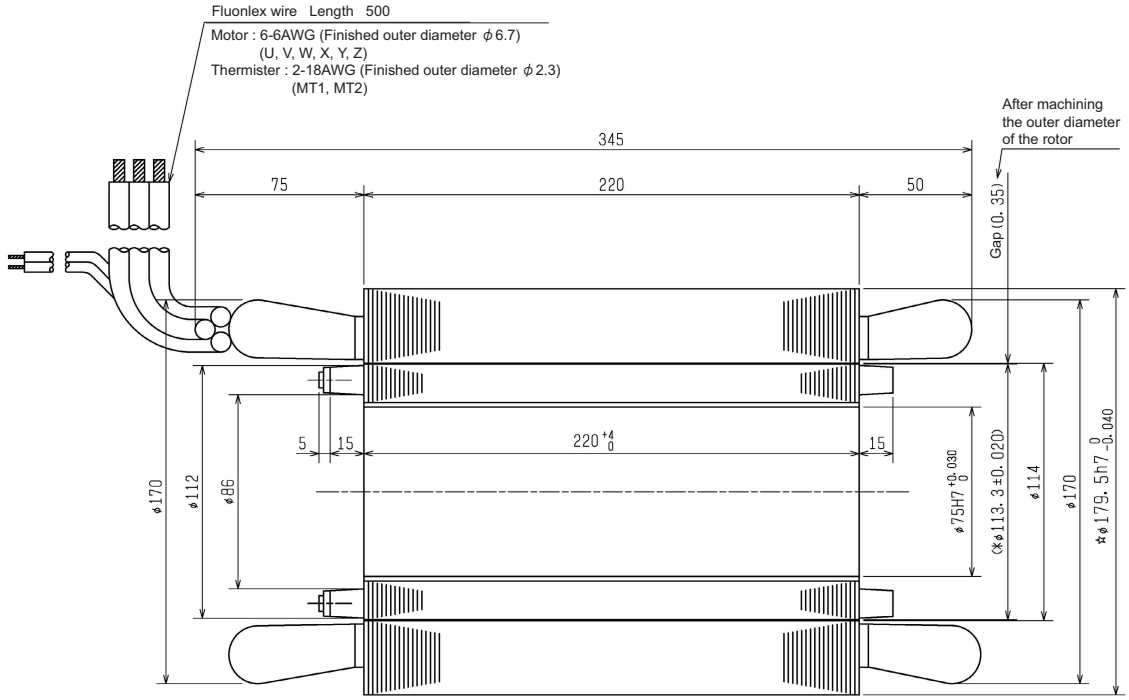
120% of this characteristics is output at the time of actual acceleration/deceleration.

Torque at acceleration/deceleration-rotation speed characteristics



120% of this characteristics is torque at the time of actual acceleration/deceleration.

Outline dimension drawings [Unit : mm]



☆ These dimensions are the dimensions after machine machining.
* Apply finishing machining after carrying out shrink-fitting to the applicable shaft to realize these dimensions.
( ) These are reference values.

Built-in IM spindle motor

SJ-2B4304TK

Specifications

Item		Specifications	
Compatible spindle drive unit (*1)		MDS-D-SP-320	
AC reactor for spindle motor		-	
Coil changeover		Low-speed coil	High-speed coil
Output capacity[kW]	Continuous rated output	5.5	5.5
	Short time rated output	7.5(30-minute rating)	7.5(30-minute rating)
	Standard output during acceleration/deceleration	15	
	Actual acceleration/deceleration output (*3)	18	
Base rotation speed	Continuous[r/min]	450	750
	Short time[r/min]	520	750
Maximum rotation speed[r/min]		1500	12000
Frame No.		112-280	
Torque (Base rotation speed)	Continuous[N・m]	117	70.0
	Short time[N・m]	138	95.5
Rotor GD^2 [kg・m^2]		0.11	
Rotor inertia moment[kg・m^2]		0.028	
Mass	Stator[kg]	33	
	Rotor[kg]	12	
Overload capacity (for one minute)		120% of short-time rated output	
Ambient temperature[°C]		0 to 40	
Heat-resistant class		F(155°C)	
Tolerable vibration		Maximum stationary tolerable value 9.8m/s^2(1G), Momentary stationary tolerable value 29.4m/s^2(3G)	
Required cooling capacity (*2)[W]		3870	
Cooling oil amount[l/min (20°C)]		10	

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

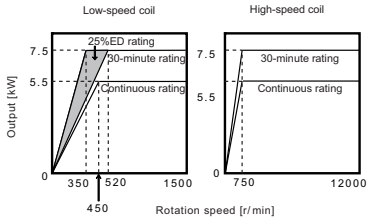
(*2) The value for the short-time rated output is shown for the required cooling capacity. Install a cooling jacket around the stator and use fluid cooling (oil cooling).

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

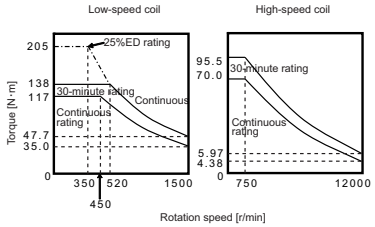
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

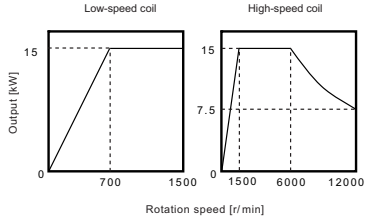
Output at steady state - rotation speed characteristics



Torque at steady state-rotation speed characteristics

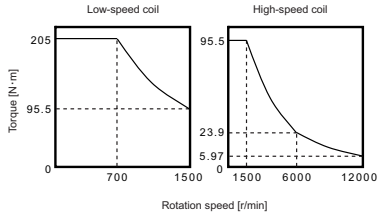


Output at acceleration/deceleration-rotation speed characteristics



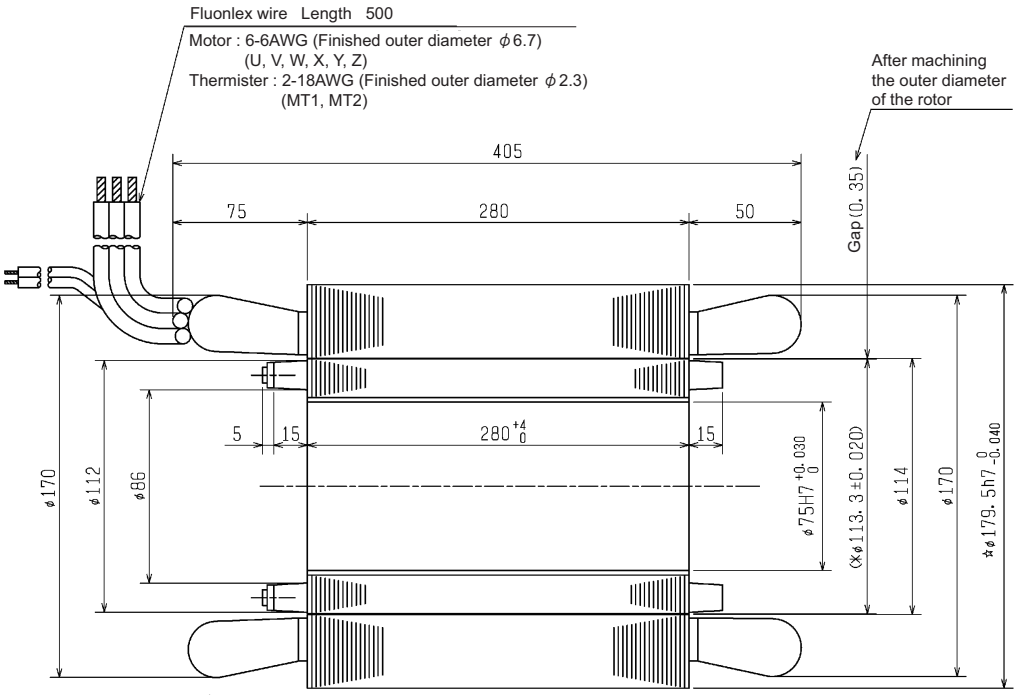
120% of this characteristics is output at the time of actual acceleration/deceleration.

Torque at acceleration/deceleration-rotation speed characteristics



120% of this characteristics is torque at the time of actual acceleration/deceleration.

Outline dimension drawings [Unit : mm]



☆ These dimensions are the dimensions after machine machining.

* Apply finishing machining after carrying out shrink-fitting to the applicable shaft to realize these dimensions.

( ) These are reference values.

Built-in IM spindle motor

SJ-2B4318TK

Specifications

Item		Specifications	
Compatible spindle drive unit (*1)		MDS-D-SP-320	
AC reactor for spindle motor		-	
Coil changeover		Low-speed coil	High-speed coil
Output capacity[kW]	Continuous rated output	15	18.5
	Short time rated output	18.5(15-minute rating)	22(15-minute rating)
	Standard output during acceleration/deceleration	18.5	22
	Actual acceleration/deceleration output (*3)	22.2	26.4
Base rotation speed	Continuous[r/min]	1200	2500
	Short time[r/min]	1200	2500
Maximum rotation speed[r/min]		3000	12000
Frame No.		112-280	
Torque (Base rotation speed)	Continuous[N・m]	119	70.7
	Short time[N・m]	147	84.0
Rotor GD^2 [kg・m^2]		0.11	
Rotor inertia moment[kg・m^2]		0.028	
Mass	Stator[kg]	33	
	Rotor[kg]	12	
Overload capacity (for one minute)		120% of short-time rated output	
Ambient temperature[°C]		0 to 40	
Heat-resistant class		F(155°C)	
Tolerable vibration		Maximum stationary tolerable value 9.8m/s^2(1G), Momentary stationary tolerable value 29.4m/s^2(3G)	
Required cooling capacity (*2)[W]		4950	
Cooling oil amount[l/min (20°C)]		10	

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

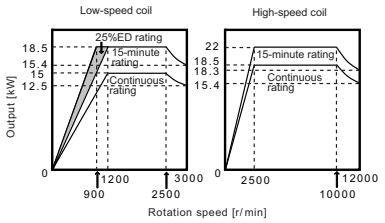
(*2) The value for the short-time rated output is shown for the required cooling capacity. Install a cooling jacket around the stator and use fluid cooling (oil cooling).

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

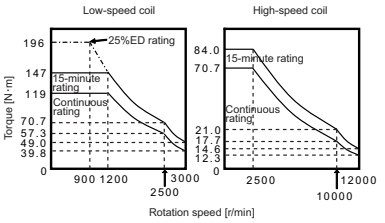
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Output at steady state - rotation speed characteristics



Torque at steady state-rotation speed characteristics



Output at acceleration/deceleration-rotation speed characteristics

Low-speed coil
120% of the 25%ED rating characteristics is output at the time of acceleration/deceleration.

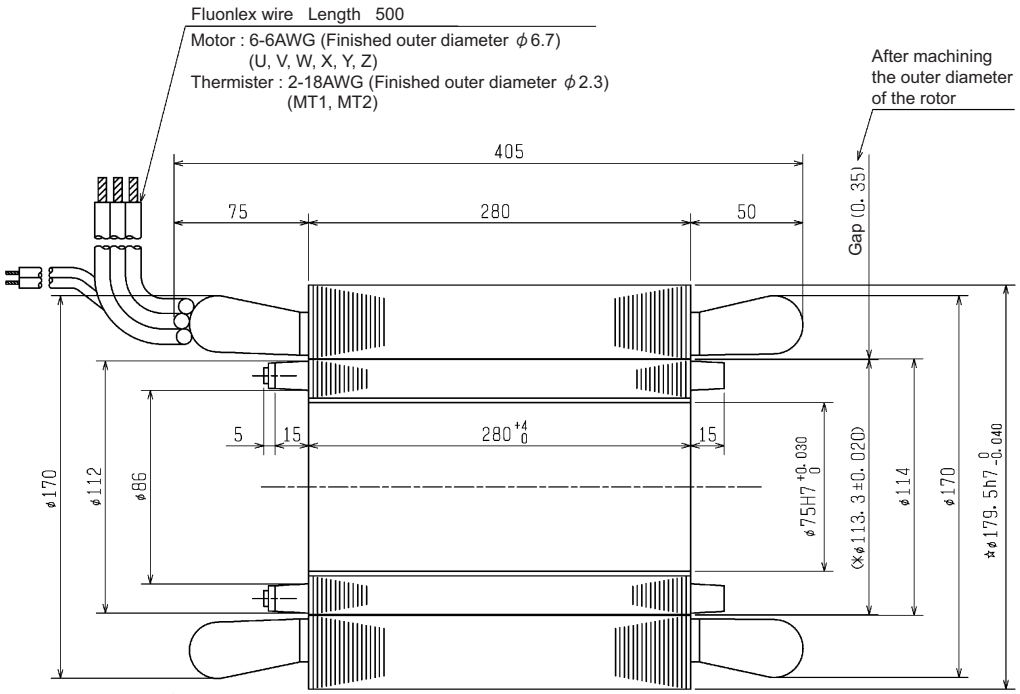
High-speed coil
120% of the 15-minute rating characteristics is output at the time of acceleration/deceleration.

Torque at acceleration/deceleration-rotation speed characteristics

Low-speed coil
120% of the 25%ED rating characteristics is torque at the time of acceleration/deceleration.

High-speed coil
120% of the 15-minute rating characteristics is torque at the time of acceleration/deceleration.

Outline dimension drawings [Unit : mm]



☆ These dimensions are the dimensions after machine machining.
* Apply finishing machining after carrying out shrink-fitting to the applicable shaft to realize these dimensions.
( ) These are reference values.

Built-in IM spindle motor

SJ-2B4412T

Specifications

Item		Specifications
Compatible spindle drive unit (*1)		MDS-D-SP-160
AC reactor for spindle motor		-
Coil changeover		-
Output capacity[kW]	Continuous rated output	3.7
	Short time rated output	5.5(30-minute rating)
	Standard output during acceleration/deceleration	5.5
	Actual acceleration/deceleration output (*3)	6.6
Base rotation speed	Continuous[r/min]	1500
	Short time[r/min]	1500
Maximum rotation speed[r/min]		10000
Frame No.		132-95
Torque (Base rotation speed)	Continuous[N・m]	23.6
	Short time[N・m]	35.0
Rotor GD^2 [kg・m^2]		0.077
Rotor inertia moment[kg・m^2]		0.0193
Mass	Stator[kg]	15
	Rotor[kg]	6.2
Overload capacity (for one minute)		120% of short-time rated output
Ambient temperature[°C]		0 to 40
Heat-resistant class		F(155°C)
Tolerable vibration		Maximum stationary tolerable value 9.8m/s^2(1G), Momentary stationary tolerable value 29.4m/s^2(3G)
Required cooling capacity (*2)[W]		920
Cooling oil amount[l/min (20°C)]		5

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

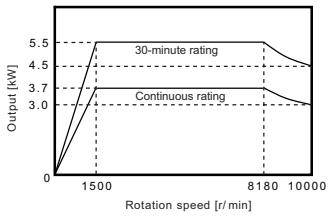
(*2) The value for the short-time rated output is shown for the required cooling capacity. Install a cooling jacket around the stator and use fluid cooling (oil cooling).

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

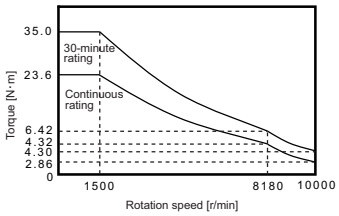
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Output at steady state - rotation speed characteristics



Torque at steady state-rotation speed characteristics



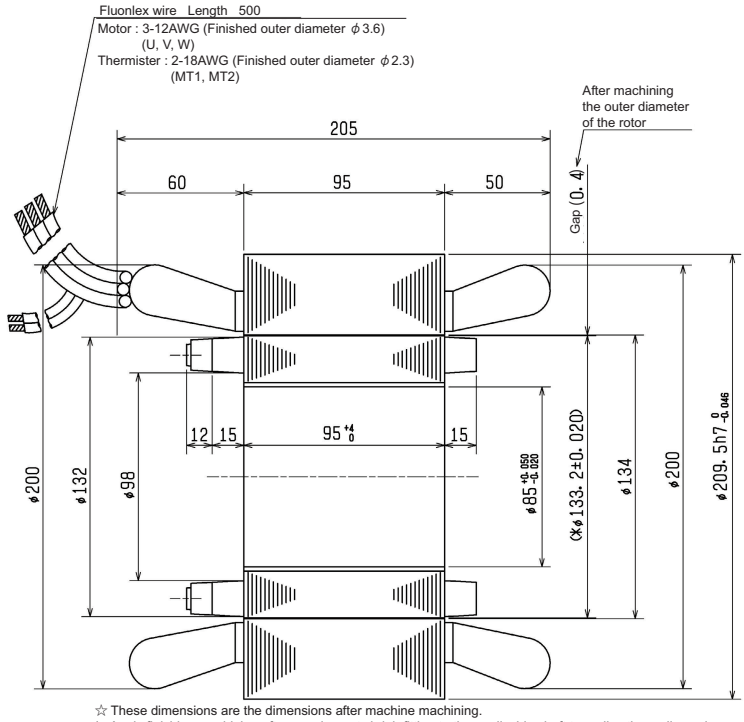
Output at acceleration/deceleration-rotation speed characteristics

120% of the 30-minute rating characteristics is output at the time of acceleration/deceleration.

Torque at acceleration/deceleration-rotation speed characteristics

120% of the 30-minute rating characteristics is torque at the time of acceleration/deceleration.

Outline dimension drawings [Unit : mm]



☆ These dimensions are the dimensions after machine machining.
* Apply finishing machining after carrying out shrink-fitting to the applicable shaft to realize these dimensions.
( ) These are reference values.

Built-in IM spindle motor

SJ-2B4501TK

Specifications

Item		Specifications	
Compatible spindle drive unit (*1)		MDS-D-SP-200	
AC reactor for spindle motor		-	
Coil changeover		Low-speed coil	High-speed coil
Output capacity[kW]	Continuous rated output	7.5	7.5
	Short time rated output	11(30-minute rating)	11(30-minute rating)
	Standard output during acceleration/deceleration	15	
	Actual acceleration/deceleration output (*3)	18	
Base rotation speed	Continuous[r/min]	700	1320
	Short time[r/min]	700	1320
Maximum rotation speed[r/min]		2250	10000
Frame No.		160-175	
Torque (Base rotation speed)	Continuous[N・m]	102	54.3
	Short time[N・m]	150	79.6
Rotor GD^2 [kg・m^2]		0.32	
Rotor inertia moment[kg・m^2]		0.08	
Mass	Stator[kg]	29	
	Rotor[kg]	18	
Overload capacity (for one minute)		120% of short-time rated output	
Ambient temperature[°C]		0 to 40	
Heat-resistant class		F(155°C)	
Tolerable vibration		Maximum stationary tolerable value 9.8m/s^2(1G), Momentary stationary tolerable value 29.4m/s^2(3G)	
Required cooling capacity (*2)[W]		3850	
Cooling oil amount[l/min (20°C)]		10	

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

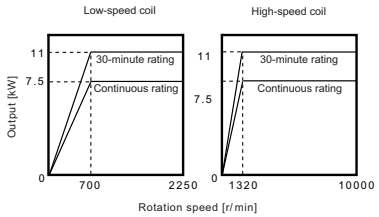
(*2) The value for the short-time rated output is shown for the required cooling capacity. Install a cooling jacket around the stator and use fluid cooling (oil cooling).

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

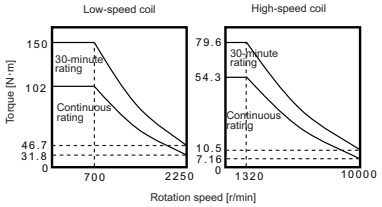
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

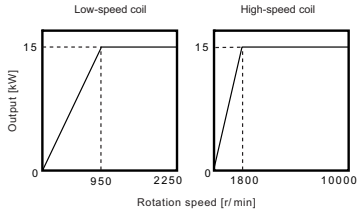
Output at steady state - rotation speed characteristics



Torque at steady state-rotation speed characteristics

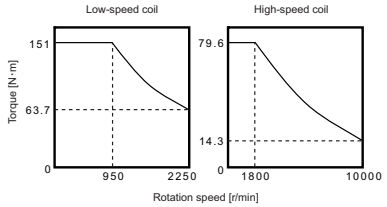


Output at acceleration/deceleration-rotation speed characteristics



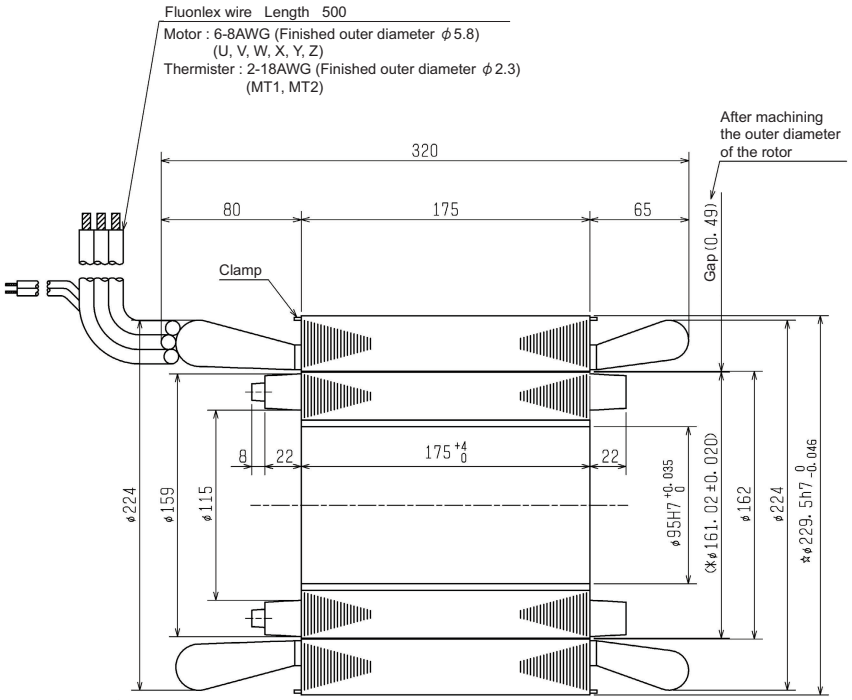
120% of this characteristics is output at the time of actual acceleration/deceleration.

Torque at acceleration/deceleration-rotation speed characteristics



120% of this characteristics is torque at the time of actual acceleration/deceleration.

Outline dimension drawings [Unit : mm]



☆ These dimensions are the dimensions after machine machining.
* Apply finishing machining after carrying out shrink-fitting to the applicable shaft to realize these dimensions.
( ) These are reference values.

Built-in IM spindle motor

SJ-2B6611TK

Specifications

Item		Specifications	
Compatible spindle drive unit (*1)		MDS-D-SP-200	
AC reactor for spindle motor		-	
Coil changeover		Low-speed coil	High-speed coil
Output capacity[kW]	Continuous rated output	7.5	7.5
	Short time rated output	11(30-minute rating)	11(30-minute rating)
	Standard output during acceleration/deceleration	11	15
	Actual acceleration/deceleration output (*3)	13.2	18
Base rotation speed	Continuous[r/min]	500	1030
	Short time[r/min]	500	1030
Maximum rotation speed[r/min]		1500	6000
Frame No.		160-175	
Torque (Base rotation speed)	Continuous[N・m]	143	69.5
	Short time[N・m]	210	102
Rotor GD^2 [kg・m^2]		0.41	
Rotor inertia moment[kg・m^2]		0.102	
Mass	Stator[kg]	37	
	Rotor[kg]	19	
Overload capacity (for one minute)		120% of short-time rated output	
Ambient temperature[°C]		0 to 40	
Heat-resistant class		F(155°C)	
Tolerable vibration		Maximum stationary tolerable value 9.8m/s^2(1G), Momentary stationary tolerable value 29.4m/s^2(3G)	
Required cooling capacity (*2)[W]		3520	
Cooling oil amount[l/min (20°C)]		10	

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

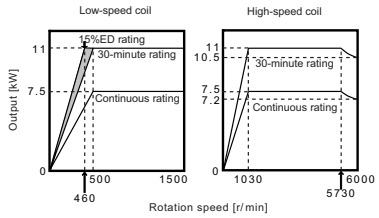
(*2) The value for the short-time rated output is shown for the required cooling capacity. Install a cooling jacket around the stator and use fluid cooling (oil cooling).

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

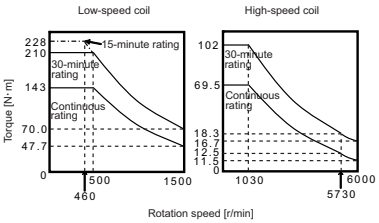
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

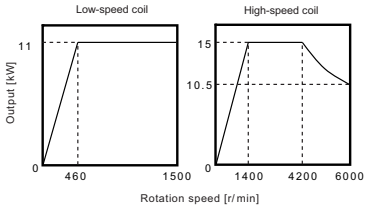
Output at steady state - rotation speed characteristics



Torque at steady state-rotation speed characteristics

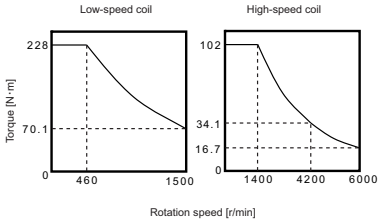


Output at acceleration/deceleration-rotation speed characteristics



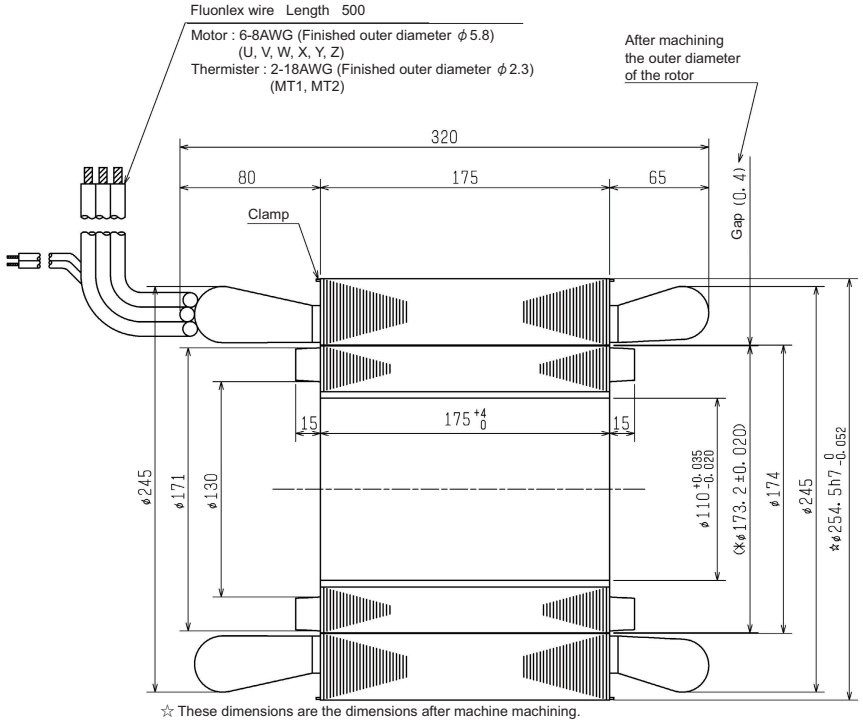
120% of this characteristics is output at the time of actual acceleration/deceleration.

Torque at acceleration/deceleration-rotation speed characteristics



120% of this characteristics is torque at the time of actual acceleration/deceleration.

Outline dimension drawings [Unit : mm]



☆ These dimensions are the dimensions after machine machining.
* Apply finishing machining after carrying out shrink-fitting to the applicable shaft to realize these dimensions.
( ) These are reference values.

Built-in IM spindle motor

SJ-2B4502TK

Specifications

Item		Specifications	
Compatible spindle drive unit (*1)		MDS-D-SP-320	
AC reactor for spindle motor		-	
Coil changeover		Low-speed coil	High-speed coil
Output capacity[kW]	Continuous rated output	7.5	7.5
	Short time rated output	11(30-minute rating)	11(30-minute rating)
	Standard output during acceleration/deceleration	22	
	Actual acceleration/deceleration output (*3)	26.4	
Base rotation speed	Continuous[r/min]	525	1050
	Short time[r/min]	525	1050
Maximum rotation speed[r/min]		3000	10000
Frame No.		160-230	
Torque (Base rotation speed)	Continuous[N・m]	136	68.2
	Short time[N・m]	200	100
Rotor GD^2 [kg・m^2]		0.42	
Rotor inertia moment[kg・m^2]		0.105	
Mass	Stator[kg]	37	
	Rotor[kg]	24	
Overload capacity (for one minute)		120% of short-time rated output	
Ambient temperature[°C]		0 to 40	
Heat-resistant class		F(155°C)	
Tolerable vibration		Maximum stationary tolerable value 9.8m/s^2(1G), Momentary stationary tolerable value 29.4m/s^2(3G)	
Required cooling capacity (*2)[W]		4730	
Cooling oil amount[l/min (20°C)]		10	

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

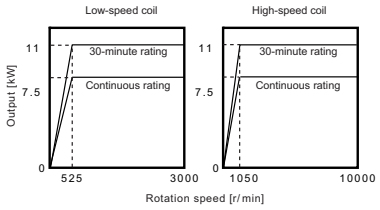
(*2) The value for the short-time rated output is shown for the required cooling capacity. Install a cooling jacket around the stator and use fluid cooling (oil cooling).

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

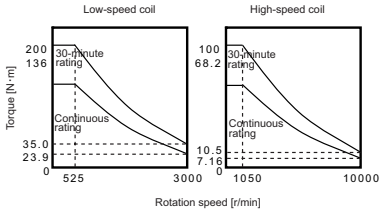
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

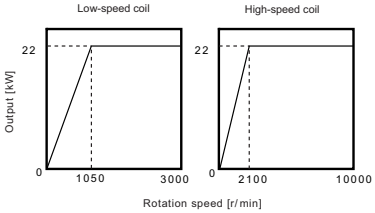
Output at steady state - rotation speed characteristics



Torque at steady state-rotation speed characteristics

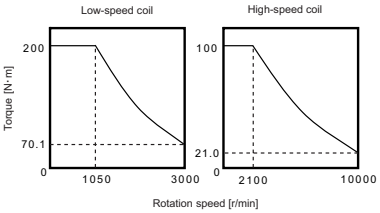


Output at acceleration/deceleration-rotation speed characteristics



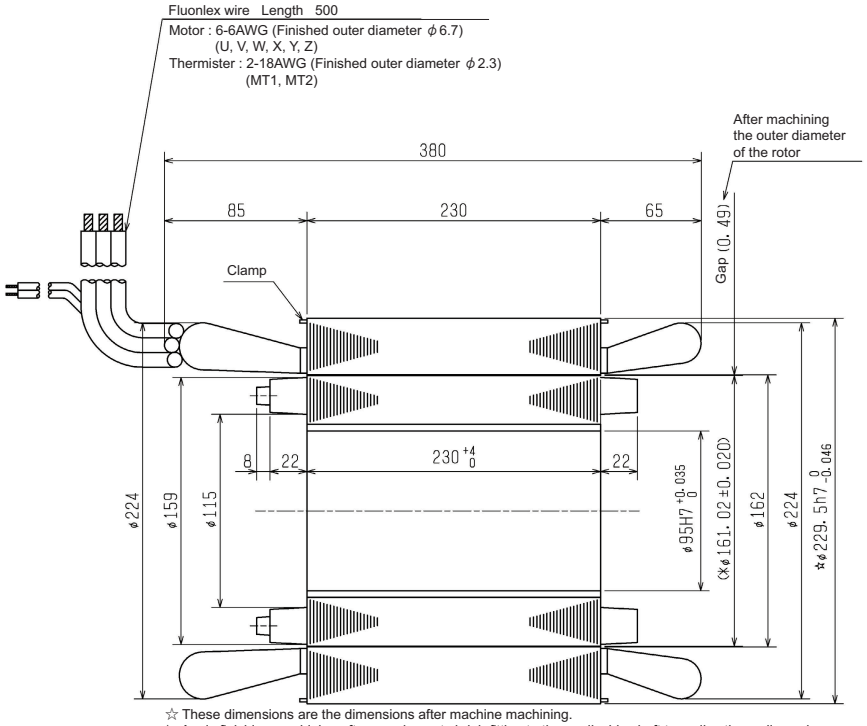
120% of this characteristics is output at the time of actual acceleration/deceleration.

Torque at acceleration/deceleration-rotation speed characteristics



120% of this characteristics is torque at the time of actual acceleration/deceleration.

Outline dimension drawings [Unit : mm]



☆ These dimensions are the dimensions after machine machining.
* Apply finishing machining after carrying out shrink-fitting to the applicable shaft to realize these dimensions.
( ) These are reference values.

Built-in IM spindle motor

SJ-2B6602TK

Specifications

Item		Specifications	
Compatible spindle drive unit (*1)		MDS-D-SP-320	
AC reactor for spindle motor		-	
Coil changeover		Low-speed coil	High-speed coil
Output capacity[kW]	Continuous rated output	11	11
	Short time rated output	15(30-minute rating)	15(30-minute rating)
	Standard output during acceleration/deceleration	15	22
	Actual acceleration/deceleration output (*3)	18	26.4
Base rotation speed	Continuous[r/min]	550	1193
	Short time[r/min]	550	1193
Maximum rotation speed[r/min]		2000	8000
Frame No.		160-230	
Torque (Base rotation speed)	Continuous[N・m]	191	88.0
	Short time[N・m]	260	120
Rotor GD^2 [kg・m^2]		0.53	
Rotor inertia moment[kg・m^2]		0.133	
Mass	Stator[kg]	49	
	Rotor[kg]	25	
Overload capacity (for one minute)		120% of short-time rated output	
Ambient temperature[°C]		0 to 40	
Heat-resistant class		F(155°C)	
Tolerable vibration		Maximum stationary tolerable value 9.8m/s^2(1G), Momentary stationary tolerable value 29.4m/s^2(3G)	
Required cooling capacity (*2)[W]		3810	
Cooling oil amount[l/min (20°C)]		10	

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

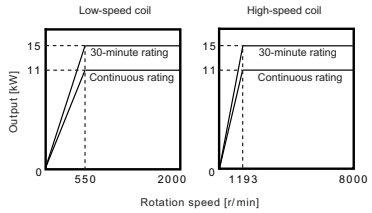
(*2) The value for the short-time rated output is shown for the required cooling capacity. Install a cooling jacket around the stator and use fluid cooling (oil cooling).

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

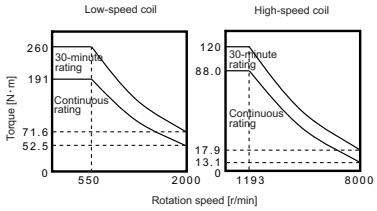
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

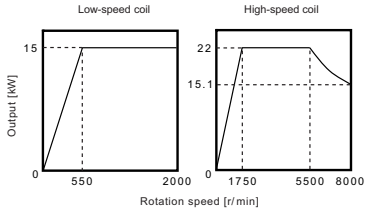
Output at steady state - rotation speed characteristics



Torque at steady state-rotation speed characteristics

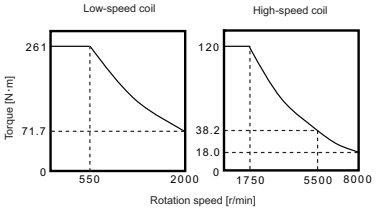


Output at acceleration/deceleration-rotation speed characteristics



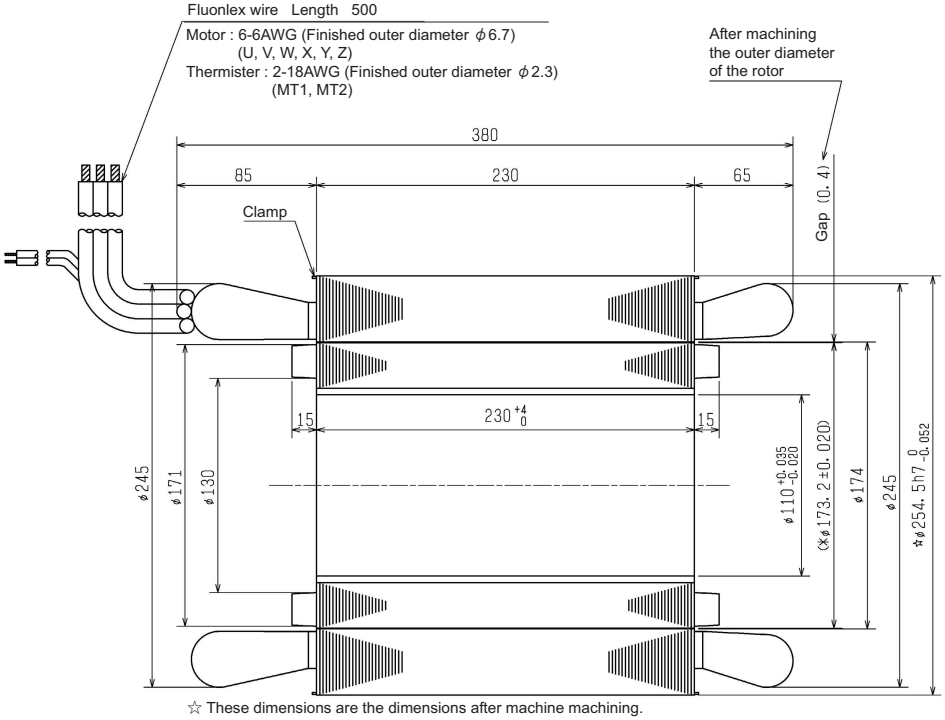
120% of this characteristics is output at the time of actual acceleration/deceleration.

Torque at acceleration/deceleration-rotation speed characteristics



120% of this characteristics is torque at the time of actual acceleration/deceleration.

Outline dimension drawings [Unit : mm]



☆ These dimensions are the dimensions after machine machining.
* Apply finishing machining after carrying out shrink-fitting to the applicable shaft to realize these dimensions.
( ) These are reference values.

Built-in IM spindle motor

SJ-2B4601TK

Specifications

Item		Specifications	
Compatible spindle drive unit (*1)		MDS-D-SP-320	
AC reactor for spindle motor		-	
Coil changeover		Low-speed coil	High-speed coil
Output capacity[kW]	Continuous rated output	22	22
	Short time rated output	26(30-minute rating)	26(30-minute rating)
	Standard output during acceleration/deceleration	26	
	Actual acceleration/deceleration output (*3)	31.2	
Base rotation speed	Continuous[r/min]	1250	3000
	Short time[r/min]	1250	3000
Maximum rotation speed[r/min]		3500	10000
Frame No.		160-230	
Torque (Base rotation speed)	Continuous[N・m]	168	70.0
	Short time[N・m]	199	82.8
Rotor GD^2 [kg・m^2]		0.42	
Rotor inertia moment[kg・m^2]		0.105	
Mass	Stator[kg]	55	
	Rotor[kg]	24	
Overload capacity (for one minute)		120% of short-time rated output	
Ambient temperature[°C]		0 to 40	
Heat-resistant class		F(155°C)	
Tolerable vibration		Maximum stationary tolerable value 9.8m/s^2(1G), Momentary stationary tolerable value 29.4m/s^2(3G)	
Required cooling capacity (*2)[W]		3270	
Cooling oil amount[l/min (20°C)]		10	

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

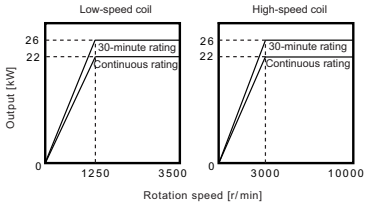
(*2) The value for the short-time rated output is shown for the required cooling capacity. Install a cooling jacket around the stator and use fluid cooling (oil cooling).

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

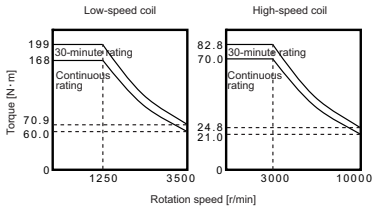
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Output at steady state - rotation speed characteristics



Torque at steady state-rotation speed characteristics



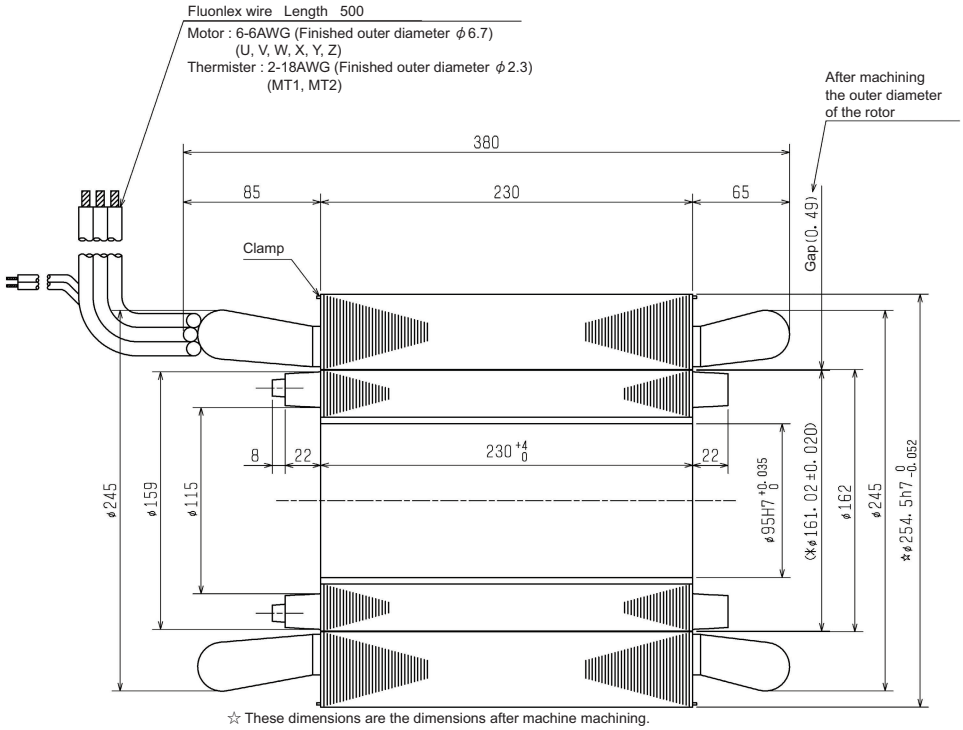
Output at acceleration/deceleration-rotation speed characteristics

120% of the 30-minute rating characteristics is output at the time of acceleration/deceleration.

Torque at acceleration/deceleration-rotation speed characteristics

120% of the 30-minute rating characteristics is torque at the time of acceleration/deceleration.

Outline dimension drawings [Unit : mm]



☆ These dimensions are the dimensions after machine machining.
* Apply finishing machining after carrying out shrink-fitting to the applicable shaft to realize these dimensions.
( ) These are reference values.

Built-in IM spindle motor

SJ-2B6605TK

Specifications

Item		Specifications	
Compatible spindle drive unit (*1)		MDS-D-SP-240	
AC reactor for spindle motor		-	
Coil changeover		Low-speed coil	High-speed coil
Output capacity[kW]	Continuous rated output	11	11
	Short time rated output	15(30-minute rating)	15(30-minute rating)
	Standard output during acceleration/deceleration	15	
	Actual acceleration/deceleration output (*3)	18	
Base rotation speed	Continuous[r/min]	440	1000
	Short time[r/min]	440	1000
Maximum rotation speed[r/min]		1500	6000
Frame No.		160-295	
Torque (Base rotation speed)	Continuous[N・m]	239	105
	Short time[N・m]	326	143
Rotor GD^2 [kg・m^2]		0.69	
Rotor inertia moment[kg・m^2]		0.173	
Mass	Stator[kg]	63	
	Rotor[kg]	33	
Overload capacity (for one minute)		120% of short-time rated output	
Ambient temperature[°C]		0 to 40	
Heat-resistant class		F(155°C)	
Tolerable vibration		Maximum stationary tolerable value 9.8m/s^2(1G), Momentary stationary tolerable value 29.4m/s^2(3G)	
Required cooling capacity (*2)[W]		4450	
Cooling oil amount[l/min (20°C)]		10	

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

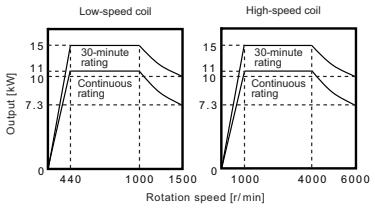
(*2) The value for the short-time rated output is shown for the required cooling capacity. Install a cooling jacket around the stator and use fluid cooling (oil cooling).

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

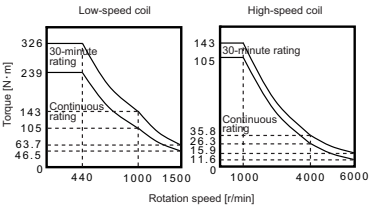
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Output at steady state - rotation speed characteristics



Torque at steady state-rotation speed characteristics



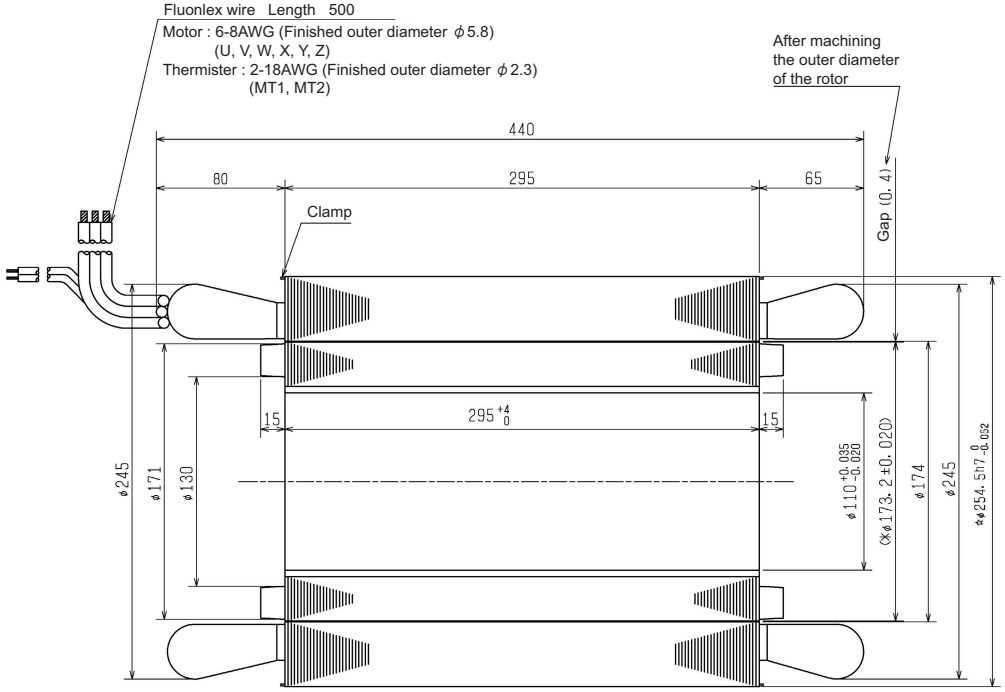
Output at acceleration/deceleration-rotation speed characteristics

120% of the 30-minute rating characteristics is output at the time of acceleration/deceleration.

Torque at acceleration/deceleration-rotation speed characteristics

120% of the 30-minute rating characteristics is torque at the time of acceleration/deceleration.

Outline dimension drawings [Unit : mm]



☆ These dimensions are the dimensions after machine machining.
* Apply finishing machining after carrying out shrink-fitting to the applicable shaft to realize these dimensions.
( ) These are reference values.

Built-in IM spindle motor

SJ-2B4503TK

Specifications

Item		Specifications	
Compatible spindle drive unit (*1)		MDS-D-SP-320	
AC reactor for spindle motor		-	
Coil changeover		Low-speed coil	High-speed coil
Output capacity[kW]	Continuous rated output	11	15
	Short time rated output	15(30-minute rating)	22(30-minute rating)
	Standard output during acceleration/deceleration	15	22
	Actual acceleration/deceleration output (*3)	18	26.4
Base rotation speed	Continuous[r/min]	475	1250
	Short time[r/min]	475	1250
Maximum rotation speed[r/min]		2000	10000
Frame No.		160-295	
Torque (Base rotation speed)	Continuous[N・m]	221	115
	Short time[N・m]	302	168
Rotor GD^2 [kg・m^2]		0.54	
Rotor inertia moment[kg・m^2]		0.135	
Mass	Stator[kg]	48	
	Rotor[kg]	31	
Overload capacity (for one minute)		120% of short-time rated output	
Ambient temperature[°C]		0 to 40	
Heat-resistant class		F(155°C)	
Tolerable vibration		Maximum stationary tolerable value 9.8m/s^2(1G), Momentary stationary tolerable value 29.4m/s^2(3G)	
Required cooling capacity (*2)[W]		7220	
Cooling oil amount[l/min (20°C)]		10	

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

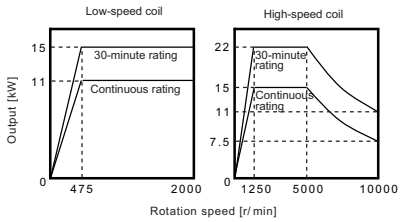
(*2) The value for the short-time rated output is shown for the required cooling capacity. Install a cooling jacket around the stator and use fluid cooling (oil cooling).

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

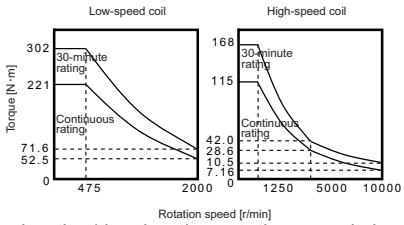
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Output at steady state - rotation speed characteristics



Torque at steady state-rotation speed characteristics



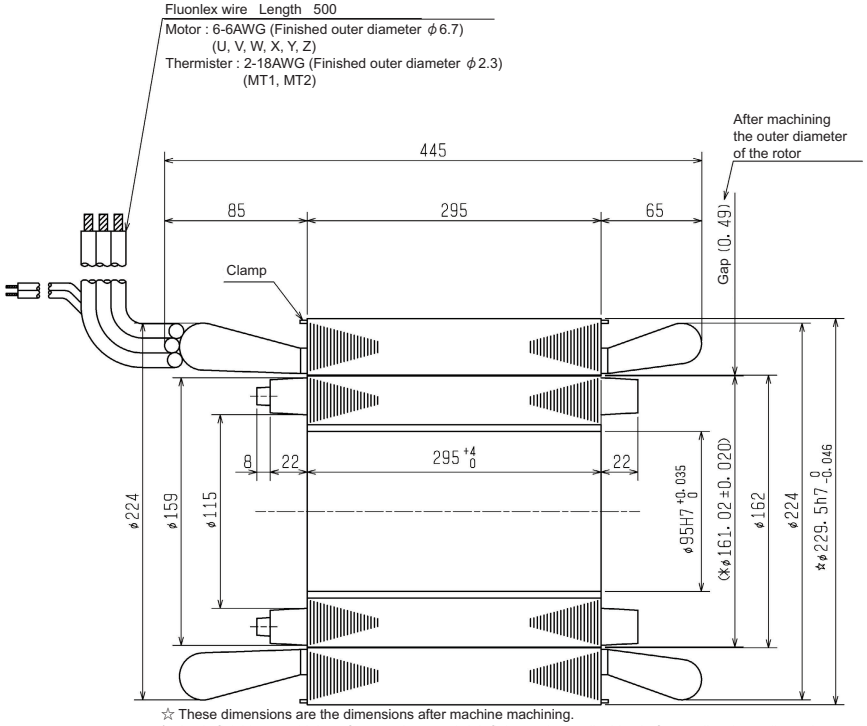
Output at acceleration/deceleration-rotation speed characteristics

120% of the 30-minute rating characteristics is output at the time of acceleration/deceleration.

Torque at acceleration/deceleration-rotation speed characteristics

120% of the 30-minute rating characteristics is torque at the time of acceleration/deceleration.

Outline dimension drawings [Unit : mm]



☆ These dimensions are the dimensions after machine machining.
* Apply finishing machining after carrying out shrink-fitting to the applicable shaft to realize these dimensions.
( ) These are reference values.

Built-in IM spindle motor

SJ-2B6603TK

Specifications

Item		Specifications	
Compatible spindle drive unit (*1)		MDS-D-SP-320	
AC reactor for spindle motor		-	
Coil changeover		Low-speed coil	High-speed coil
Output capacity[kW]	Continuous rated output	15	15
	Short time rated output	22(30-minute rating)	22(30-minute rating)
	Standard output during acceleration/deceleration	22	
	Actual acceleration/deceleration output (*3)	26.4	
Base rotation speed	Continuous[r/min]	600	1200
	Short time[r/min]	600	1200
Maximum rotation speed[r/min]		1500	6000
Frame No.		160-295	
Torque (Base rotation speed)	Continuous[N・m]	239	119
	Short time[N・m]	350	175
Rotor GD^2 [kg・m^2]		0.69	
Rotor inertia moment[kg・m^2]		0.173	
Mass	Stator[kg]	63	
	Rotor[kg]	33	
Overload capacity (for one minute)		120% of short-time rated output	
Ambient temperature[°C]		0 to 40	
Heat-resistant class		F(155°C)	
Tolerable vibration		Maximum stationary tolerable value 9.8m/s^2(1G), Momentary stationary tolerable value 29.4m/s^2(3G)	
Required cooling capacity (*2)[W]		5160	
Cooling oil amount[l/min (20°C)]		15	

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

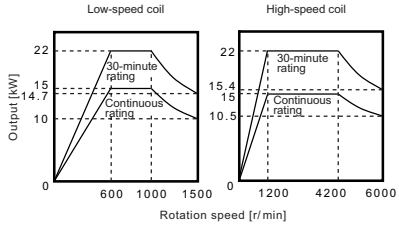
(*2) The value for the short-time rated output is shown for the required cooling capacity. Install a cooling jacket around the stator and use fluid cooling (oil cooling).

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

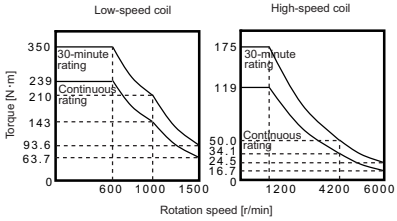
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Output at steady state - rotation speed characteristics



Torque at steady state-rotation speed characteristics



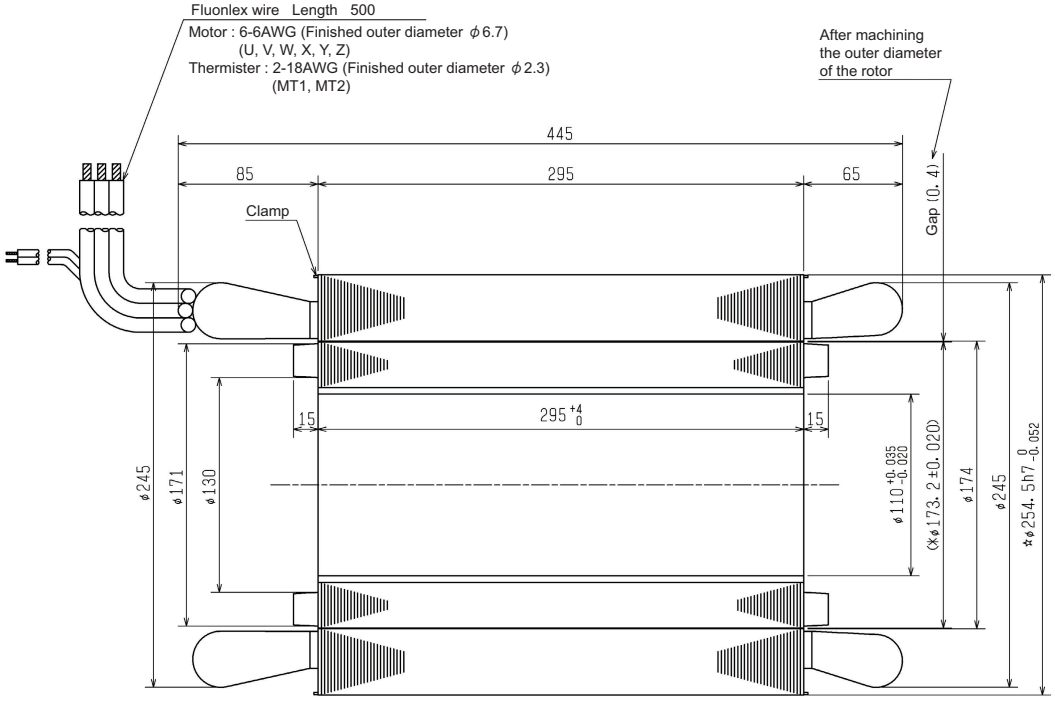
Output at acceleration/deceleration-rotation speed characteristics

120% of the 30-minute rating characteristics is output at the time of acceleration/deceleration.

Torque at acceleration/deceleration-rotation speed characteristics

120% of the 30-minute rating characteristics is torque at the time of acceleration/deceleration.

Outline dimension drawings [Unit : mm]



☆ These dimensions are the dimensions after machine machining.
* Apply finishing machining after carrying out shrink-fitting to the applicable shaft to realize these dimensions.
( ) These are reference values.

Built-in IM spindle motor

SJ-2B4602TK

Specifications

Item		Specifications	
Compatible spindle drive unit (*1)		MDS-D-SP-320	
AC reactor for spindle motor		-	
Coil changeover		Low-speed coil	High-speed coil
Output capacity[kW]	Continuous rated output	18.5	18.5
	Short time rated output	22(30-minute rating)	22(30-minute rating)
	Standard output during acceleration/deceleration	22	
	Actual acceleration/deceleration output (*3)	26.4	
Base rotation speed	Continuous[r/min]	720	1500
	Short time[r/min]	720	1500
Maximum rotation speed[r/min]		2000	10000
Frame No.		160-295	
Torque (Base rotation speed)	Continuous[N・m]	245	118
	Short time[N・m]	292	140
Rotor GD^2 [kg・m^2]		0.54	
Rotor inertia moment[kg・m^2]		0.135	
Mass	Stator[kg]	71	
	Rotor[kg]	31	
Overload capacity (for one minute)		120% of short-time rated output	
Ambient temperature[°C]		0 to 40	
Heat-resistant class		F(155°C)	
Tolerable vibration		Maximum stationary tolerable value 9.8m/s^2(1G), Momentary stationary tolerable value 29.4m/s^2(3G)	
Required cooling capacity (*2)[W]		4500	
Cooling oil amount[l/min (20°C)]		10	

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

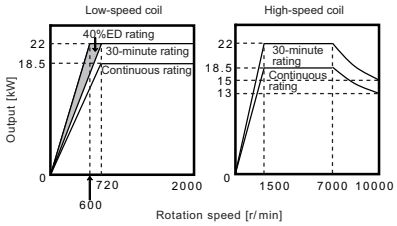
(*2) The value for the short-time rated output is shown for the required cooling capacity. Install a cooling jacket around the stator and use fluid cooling (oil cooling).

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

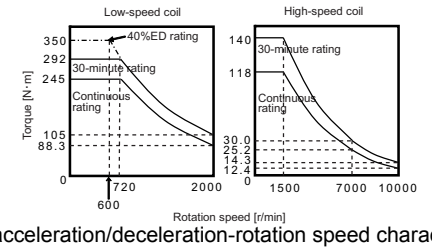
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Output at steady state - rotation speed characteristics



Torque at steady state-rotation speed characteristics



Output at acceleration/deceleration-rotation speed characteristics

Low-speed coil
120% of the 40%ED rating characteristics is output at the time of acceleration/deceleration.

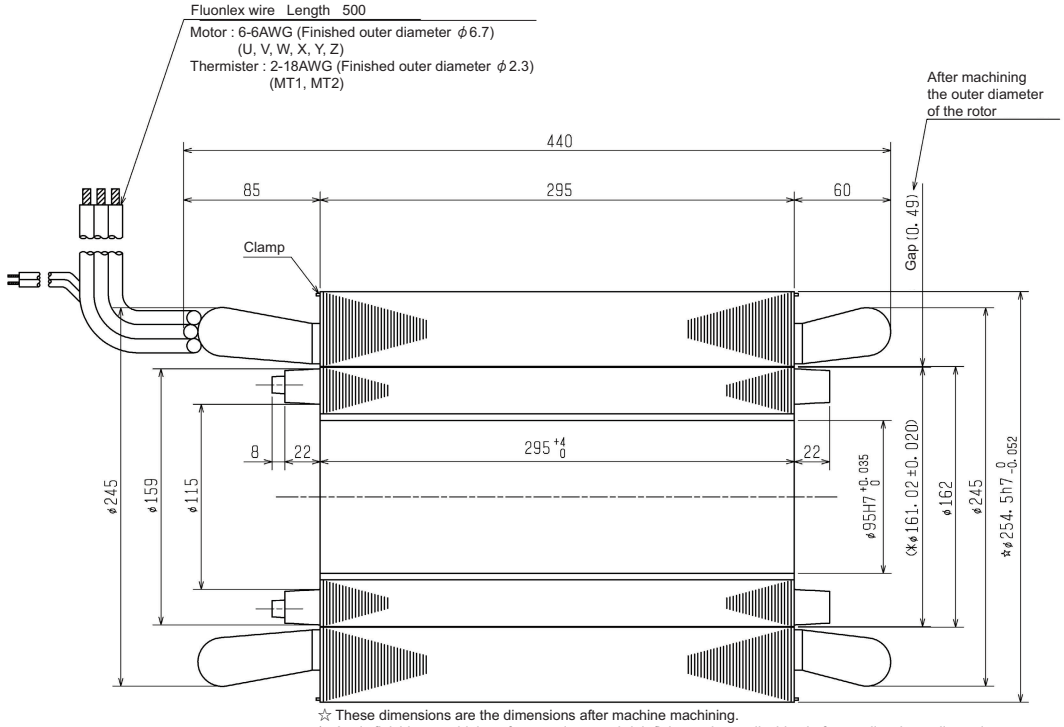
High-speed coil
120% of the 30-minute rating characteristics is output at the time of acceleration/deceleration.

Torque at acceleration/deceleration-rotation speed characteristics

Low-speed coil
120% of the 40%ED rating characteristics is torque at the time of acceleration/deceleration.

High-speed coil
120% of the 30-minute rating characteristics is torque at the time of acceleration/deceleration.

Outline dimension drawings [Unit : mm]



☆ These dimensions are the dimensions after machine machining.
* Apply finishing machining after carrying out shrink-fitting to the applicable shaft to realize these dimensions.
( ) These are reference values.

Built-in IM spindle motor

SJ-2B4511TK

Specifications

Item		Specifications	
Compatible spindle drive unit (*1)		MDS-D-SP-320	
AC reactor for spindle motor		-	
Coil changeover		Low-speed coil	High-speed coil
Output capacity[kW]	Continuous rated output	15	22
	Short time rated output	22(10-minute rating)	30(30-minute rating)
	Standard output during acceleration/deceleration	22	30
	Actual acceleration/deceleration output (*3)	26.4	36
Base rotation speed	Continuous[r/min]	600	1600
	Short time[r/min]	600	1600
Maximum rotation speed[r/min]		2000	10000
Frame No.		160-330	
Torque (Base rotation speed)	Continuous[N・m]	239	131
	Short time[N・m]	350	179
Rotor GD^2 [kg・m^2]		0.60	
Rotor inertia moment[kg・m^2]		0.15	
Mass	Stator[kg]	54	
	Rotor[kg]	34	
Overload capacity (for one minute)		120% of short-time rated output	
Ambient temperature[°C]		0 to 40	
Heat-resistant class		F(155°C)	
Tolerable vibration		Maximum stationary tolerable value 9.8m/s^2(1G), Momentary stationary tolerable value 29.4m/s^2(3G)	
Required cooling capacity (*2)[W]		8160	
Cooling oil amount[l/min (20°C)]		15	

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

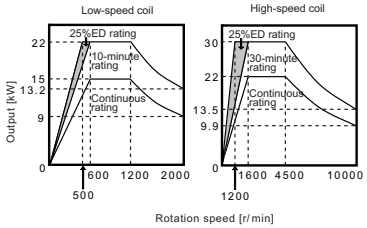
(*2) The value for the short-time rated output is shown for the required cooling capacity. Install a cooling jacket around the stator and use fluid cooling (oil cooling).

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

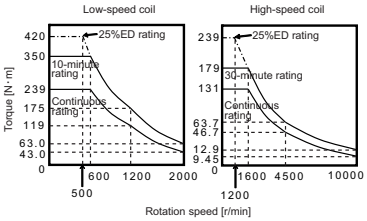
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Output at steady state - rotation speed characteristics



Torque at steady state-rotation speed characteristics



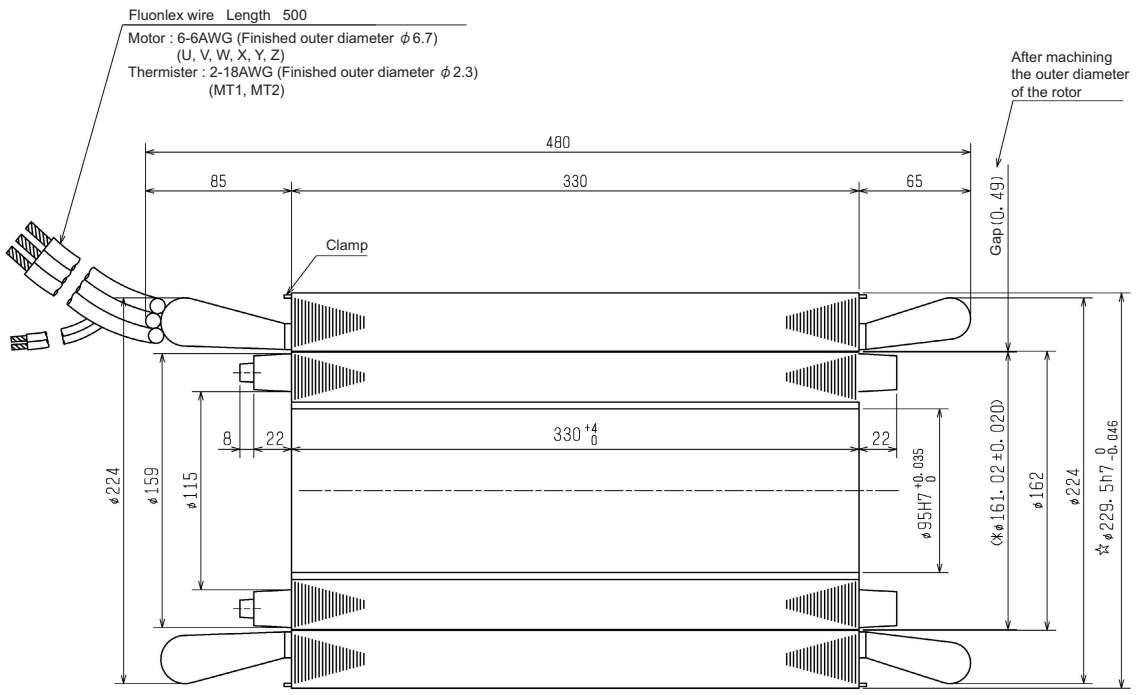
Output at acceleration/deceleration-rotation speed characteristics

120% of the 25%ED rating characteristics is output at the time of acceleration/deceleration.

Torque at acceleration/deceleration-rotation speed characteristics

120% of the 25%ED rating characteristics is torque at the time of acceleration/deceleration.

Outline dimension drawings [Unit : mm]



☆ These dimensions are the dimensions after machine machining.
* Apply finishing machining after carrying out shrink-fitting to the applicable shaft to realize these dimensions.
( ) These are reference values.

Built-in IM spindle motor

SJ-2B6720TK

Specifications

Item		Specifications	
Compatible spindle drive unit (*1)		MDS-D-SP-320	
AC reactor for spindle motor		-	
Coil changeover		Low-speed coil	High-speed coil
Output capacity[kW]	Continuous rated output	15	22
	Short time rated output	22(30-minute rating)	26(30-minute rating)
	Standard output during acceleration/deceleration	22	26
	Actual acceleration/deceleration output (*3)	26.4	31.2
Base rotation speed	Continuous[r/min]	700	1550
	Short time[r/min]	700	1550
Maximum rotation speed[r/min]		1500	4500
Frame No.		180-160	
Torque (Base rotation speed)	Continuous[N・m]	205	136
	Short time[N・m]	300	160
Rotor GD^2 [kg・m^2]		0.80	
Rotor inertia moment[kg・m^2]		0.20	
Mass	Stator[kg]	45	
	Rotor[kg]	26	
Overload capacity (for one minute)		120% of short-time rated output	
Ambient temperature[°C]		0 to 40	
Heat-resistant class		F(155°C)	
Tolerable vibration		Maximum stationary tolerable value 9.8m/s^2(1G), Momentary stationary tolerable value 29.4m/s^2(3G)	
Required cooling capacity (*2)[W]		5200	
Cooling oil amount[l/min (20°C)]		15	

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

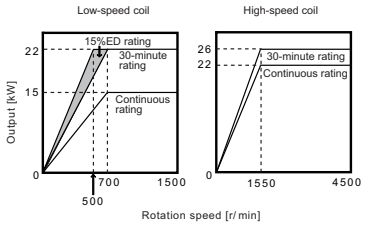
(*2) The value for the short-time rated output is shown for the required cooling capacity. Install a cooling jacket around the stator and use fluid cooling (oil cooling).

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

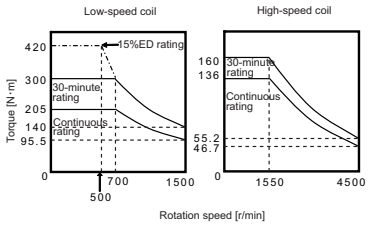
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Output at steady state - rotation speed characteristics



Torque at steady state-rotation speed characteristics



Output at acceleration/deceleration-rotation speed characteristics

Low-speed coil
120% of the 15%ED rating characteristics is output at the time of acceleration/deceleration.

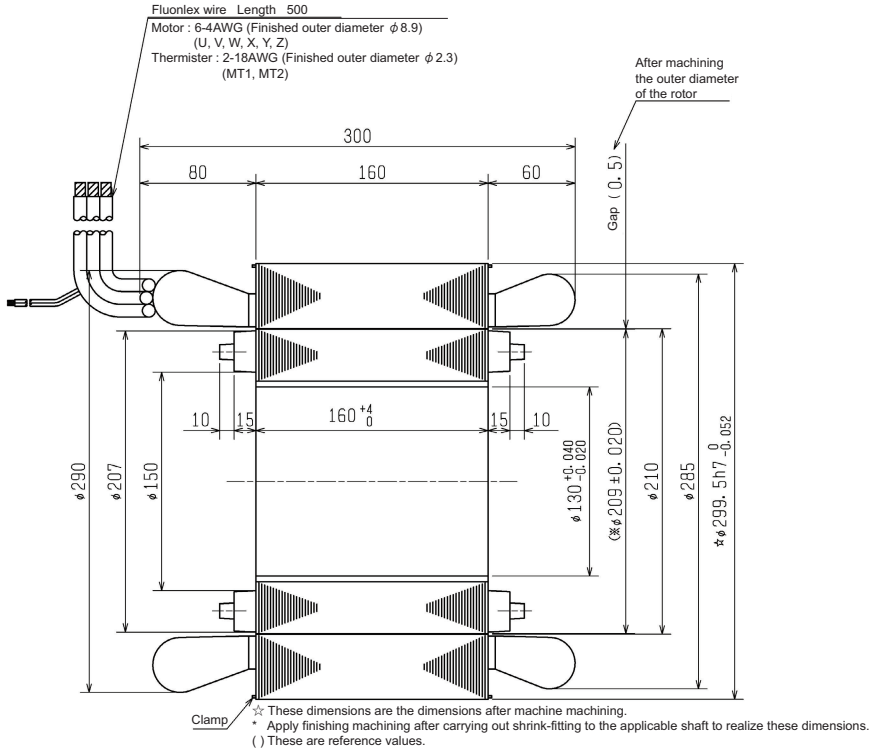
High-speed coil
120% of the 30-minute rating characteristics is output at the time of acceleration/deceleration.

Torque at acceleration/deceleration-rotation speed characteristics

Low-speed coil
120% of the 15%ED rating characteristics is torque at the time of acceleration/deceleration.

High-speed coil
120% of the 30-minute rating characteristics is torque at the time of acceleration/deceleration.

Outline dimension drawings [Unit : mm]



Built-in IM spindle motor

SJ-2B6705TK

Specifications

Item		Specifications	
Compatible spindle drive unit (*1)		MDS-D-SP-200	
AC reactor for spindle motor		-	
Coil changeover		Low-speed coil	High-speed coil
Output capacity[kW]	Continuous rated output	7.5	7.5
	Short time rated output	11(30-minute rating)	11(30-minute rating)
	Standard output during acceleration/deceleration	11	
	Actual acceleration/deceleration output (*3)	13.2	
Base rotation speed	Continuous[r/min]	270	540
	Short time[r/min]	270	540
Maximum rotation speed[r/min]		750	4500
Frame No.		180-230	
Torque (Base rotation speed)	Continuous[N・m]	265	133
	Short time[N・m]	389	195
Rotor GD^2 [kg・m^2]		1.15	
Rotor inertia moment[kg・m^2]		0.288	
Mass	Stator[kg]	65	
	Rotor[kg]	38	
Overload capacity (for one minute)		120% of short-time rated output	
Ambient temperature[°C]		0 to 40	
Heat-resistant class		F(155°C)	
Tolerable vibration		Maximum stationary tolerable value 9.8m/s^2(1G), Momentary stationary tolerable value 29.4m/s^2(3G)	
Required cooling capacity (*2)[W]		4440	
Cooling oil amount[l/min (20°C)]		10	

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

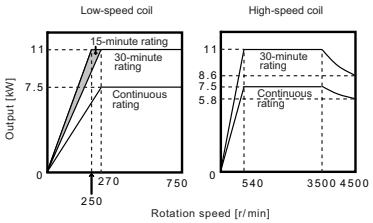
(*2) The value for the short-time rated output is shown for the required cooling capacity. Install a cooling jacket around the stator and use fluid cooling (oil cooling).

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

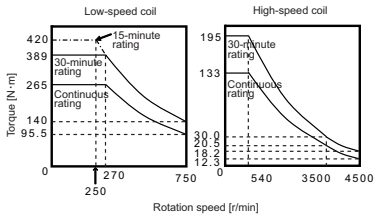
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Output at steady state - rotation speed characteristics



Torque at steady state-rotation speed characteristics



Output at acceleration/deceleration-rotation speed characteristics

Low-speed coil
120% of the 15%ED rating characteristics is output at the time of acceleration/deceleration.

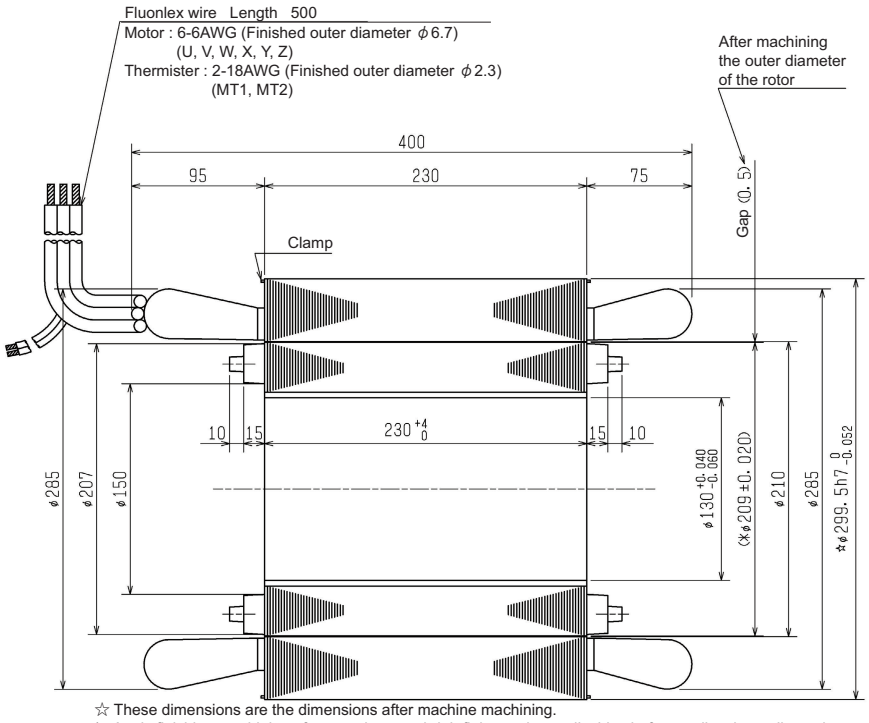
High-speed coil
120% of the 30-minute rating characteristics is output at the time of acceleration/deceleration.

Torque at acceleration/deceleration-rotation speed characteristics

Low-speed coil
120% of the 15%ED rating characteristics is torque at the time of acceleration/deceleration.

High-speed coil
120% of the 30-minute rating characteristics is torque at the time of acceleration/deceleration.

Outline dimension drawings [Unit : mm]



☆ These dimensions are the dimensions after machine machining.
* Apply finishing machining after carrying out shrink-fitting to the applicable shaft to realize these dimensions.
( ) These are reference values.

Built-in IM spindle motor

SJ-2B6711TK

Specifications

Item		Specifications	
Compatible spindle drive unit (*1)		MDS-D-SP-320	
AC reactor for spindle motor		-	
Coil changeover		Low-speed coil	High-speed coil
Output capacity[kW]	Continuous rated output	11	11
	Short time rated output	15(30-minute rating)	15(30-minute rating)
	Standard output during acceleration/deceleration	22	
	Actual acceleration/deceleration output (*3)	26.4	
Base rotation speed	Continuous[r/min]	400	920
	Short time[r/min]	500	920
Maximum rotation speed[r/min]		1700	5000
Frame No.		180-230	
Torque (Base rotation speed)	Continuous[N・m]	263	114
	Short time[N・m]	286	156
Rotor GD^2 [kg・m^2]		1.12	
Rotor inertia moment[kg・m^2]		0.280	
Mass	Stator[kg]	65	
	Rotor[kg]	37	
Overload capacity (for one minute)		120% of short-time rated output	
Ambient temperature[°C]		0 to 40	
Heat-resistant class		F(155°C)	
Tolerable vibration		Maximum stationary tolerable value 9.8m/s^2(1G), Momentary stationary tolerable value 29.4m/s^2(3G)	
Required cooling capacity (*2)[W]		3270	
Cooling oil amount[l/min (20°C)]		10	

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

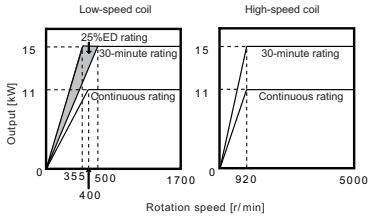
(*2) The value for the short-time rated output is shown for the required cooling capacity. Install a cooling jacket around the stator and use fluid cooling (oil cooling).

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

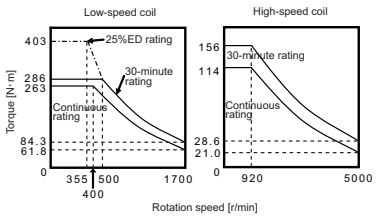
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

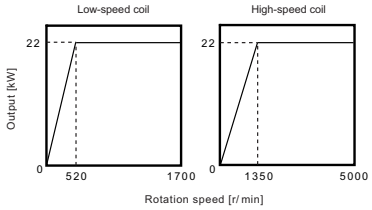
Output at steady state - rotation speed characteristics



Torque at steady state-rotation speed characteristics

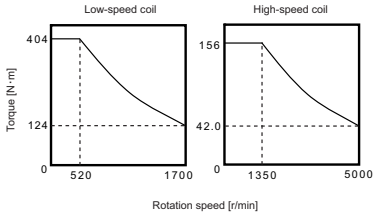


Output at acceleration/deceleration-rotation speed characteristics



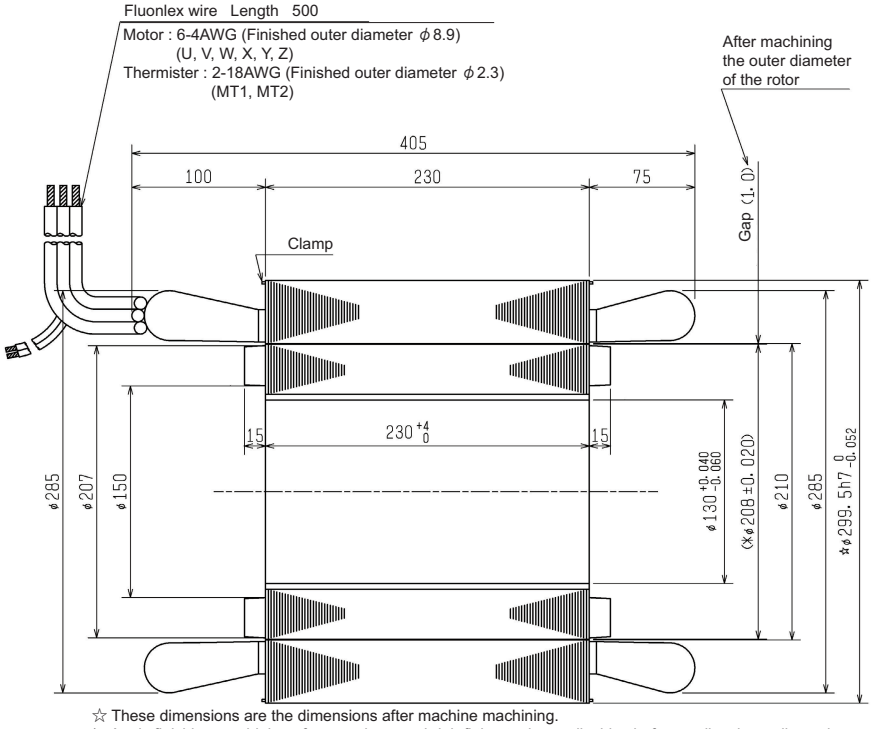
120% of this characteristics is output at the time of actual acceleration/deceleration.

Torque at acceleration/deceleration-rotation speed characteristics



120% of this characteristics is torque at the time of actual acceleration/deceleration.

Outline dimension drawings [Unit : mm]



☆ These dimensions are the dimensions after machine machining.
* Apply finishing machining after carrying out shrink-fitting to the applicable shaft to realize these dimensions.
( ) These are reference values.

Built-in IM spindle motor

SJ-2B6706TK

Specifications

Item		Specifications	
Compatible spindle drive unit (*1)		MDS-D-SP-400	
AC reactor for spindle motor		-	
Coil changeover		Low-speed coil	High-speed coil
Output capacity[kW]	Continuous rated output	15	15
	Short time rated output	18.5(30-minute rating)	18.5(30-minute rating)
	Standard output during acceleration/deceleration	26	30
	Actual acceleration/deceleration output (*3)	31.2	36
Base rotation speed	Continuous[r/min]	450	1080
	Short time[r/min]	450	1080
Maximum rotation speed[r/min]		2000	6000
Frame No.		180-230	
Torque (Base rotation speed)	Continuous[N・m]	318	133
	Short time[N・m]	393	164
Rotor GD^2 [kg・m^2]		1.15	
Rotor inertia moment[kg・m^2]		0.288	
Mass	Stator[kg]	65	
	Rotor[kg]	38	
Overload capacity (for one minute)		120% of short-time rated output	
Ambient temperature[°C]		0 to 40	
Heat-resistant class		F(155°C)	
Tolerable vibration		Maximum stationary tolerable value 9.8m/s^2(1G), Momentary stationary tolerable value 29.4m/s^2(3G)	
Required cooling capacity (*2)[W]		4620	
Cooling oil amount[l/min (20°C)]		10	

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

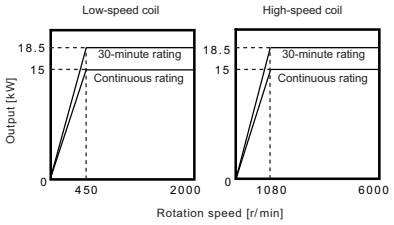
(*2) The value for the short-time rated output is shown for the required cooling capacity. Install a cooling jacket around the stator and use fluid cooling (oil cooling).

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

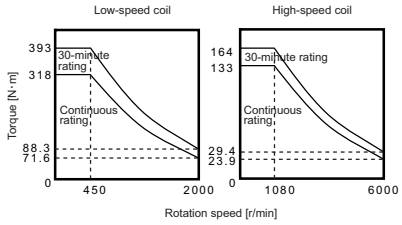
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

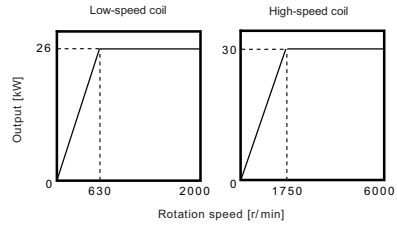
Output at steady state - rotation speed characteristics



Torque at steady state-rotation speed characteristics

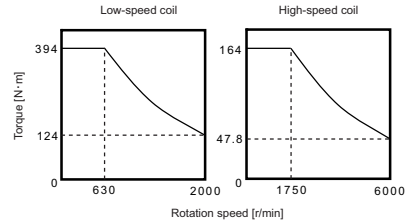


Output at acceleration/deceleration-rotation speed characteristics



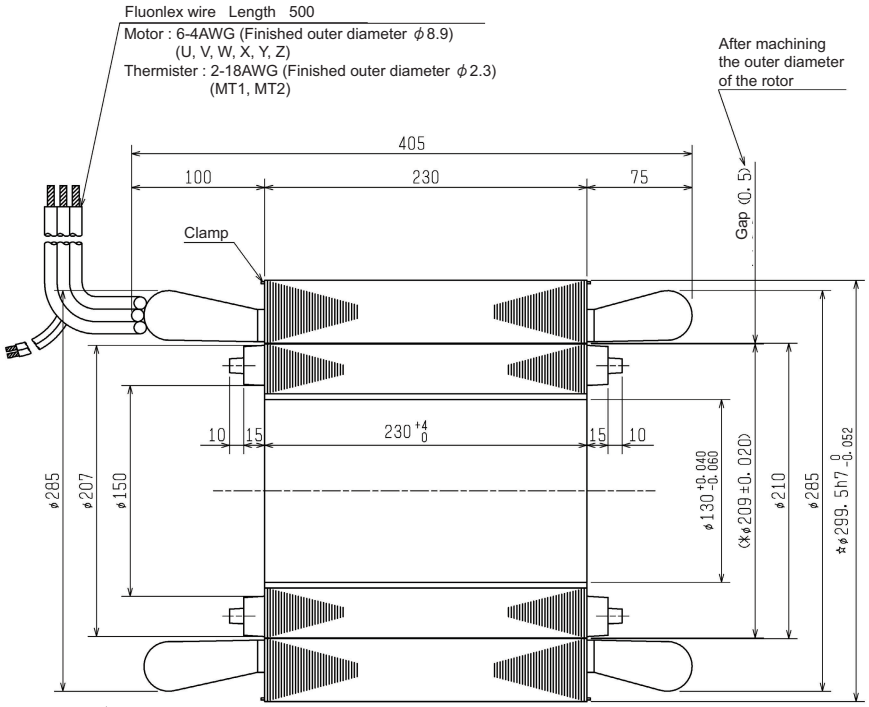
120% of this characteristics is output at the time of actual acceleration/deceleration.

Torque at acceleration/deceleration-rotation speed characteristics



120% of this characteristics is torque at the time of actual acceleration/deceleration.

Outline dimension drawings [Unit : mm]



☆ These dimensions are the dimensions after machine machining.

* Apply finishing machining after carrying out shrink-fitting to the applicable shaft to realize these dimensions.

( ) These are reference values.

Built-in IM spindle motor

SJ-2B6716TK

Specifications

Item		Specifications	
Compatible spindle drive unit (*1)		MDS-D-SP-400	
AC reactor for spindle motor		-	
Coil changeover		Low-speed coil	High-speed coil
Output capacity[kW]	Continuous rated output	15	22
	Short time rated output	22(30-minute rating)	26(30-minute rating)
	Standard output during acceleration/deceleration	26	30
	Actual acceleration/deceleration output (*3)	31.2	36
Base rotation speed	Continuous[r/min]	350	600
	Short time[r/min]	420	600
Maximum rotation speed[r/min]		600	4000
Frame No.		180-250	
Torque (Base rotation speed)	Continuous[N・m]	409	350
	Short time[N・m]	500	414
Rotor GD^2 [kg・m^2]		1.13	
Rotor inertia moment[kg・m^2]		0.283	
Mass	Stator[kg]	70	
	Rotor[kg]	35	
Overload capacity (for one minute)		120% of short-time rated output	
Ambient temperature[°C]		0 to 40	
Heat-resistant class		F(155°C)	
Tolerable vibration		Maximum stationary tolerable value 9.8m/s^2(1G), Momentary stationary tolerable value 29.4m/s^2(3G)	
Required cooling capacity (*2)[W]		7560	
Cooling oil amount[l/min (20°C)]		15	

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

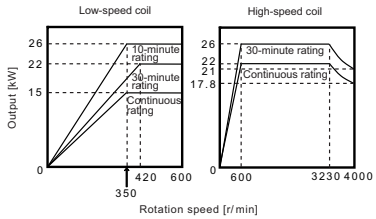
(*2) The value for the short-time rated output is shown for the required cooling capacity. Install a cooling jacket around the stator and use fluid cooling (oil cooling).

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

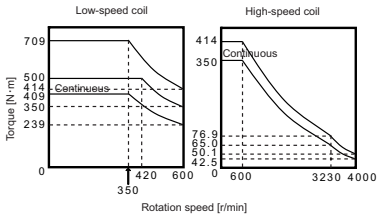
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

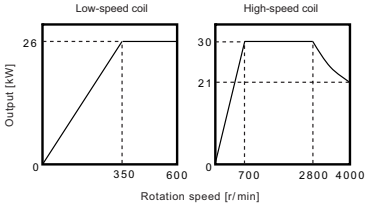
Output at steady state - rotation speed characteristics



Torque at steady state-rotation speed characteristics

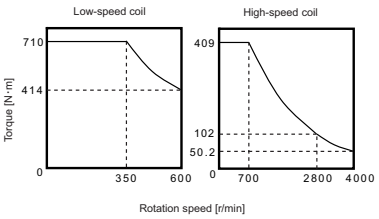


Output at acceleration/deceleration-rotation speed characteristics



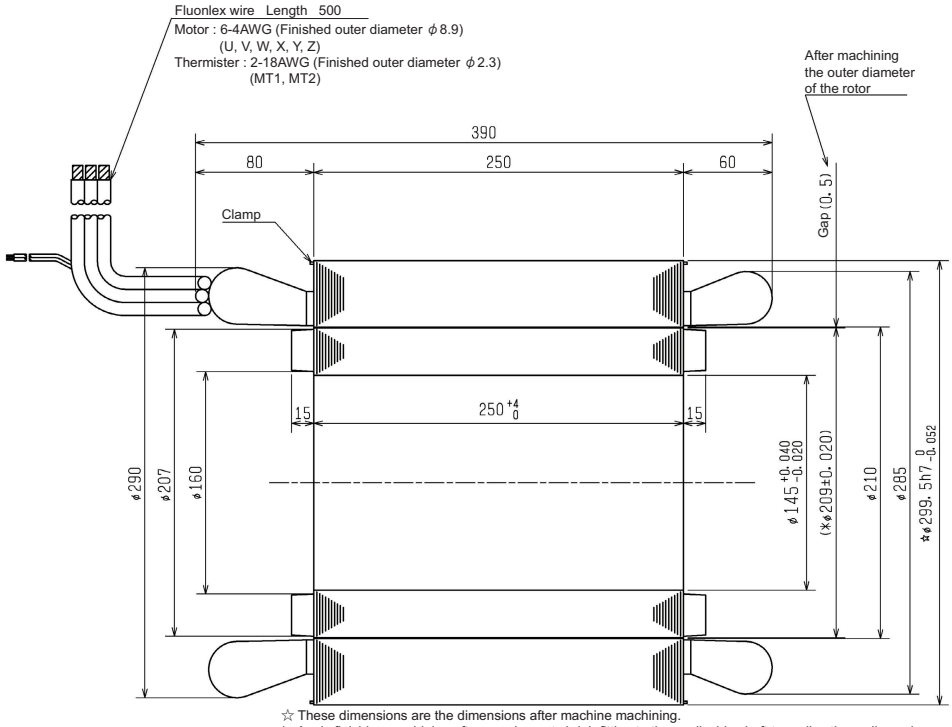
120% of this characteristics is output at the time of actual acceleration/deceleration.

Torque at acceleration/deceleration-rotation speed characteristics



120% of this characteristics is torque at the time of actual acceleration/deceleration.

Outline dimension drawings [Unit : mm]



☆ These dimensions are the dimensions after machine machining.
* Apply finishing machining after carrying out shrink-fitting to the applicable shaft to realize these dimensions.
( ) These are reference values.

Built-in IM spindle motor

SJ-2B6721TK

Specifications

Item		Specifications	
Compatible spindle drive unit (*1)		MDS-D-SP-320	
AC reactor for spindle motor		-	
Coil changeover		Low-speed coil	High-speed coil
Output capacity[kW]	Continuous rated output	18.5	22
	Short time rated output	22(30-minute rating)	30(30-minute rating)
	Standard output during acceleration/deceleration	22	30
	Actual acceleration/deceleration output (*3)	26.4	36
Base rotation speed	Continuous[r/min]	500	1500
	Short time[r/min]	500	1500
Maximum rotation speed[r/min]		1500	6000
Frame No.		180-250	
Torque (Base rotation speed)	Continuous[N・m]	353	140
	Short time[N・m]	420	191
Rotor GD^2 [kg・m^2]		1.13	
Rotor inertia moment[kg・m^2]		0.283	
Mass	Stator[kg]	70	
	Rotor[kg]	35	
Overload capacity (for one minute)		120% of short-time rated output	
Ambient temperature[°C]		0 to 40	
Heat-resistant class		F(155°C)	
Tolerable vibration		Maximum stationary tolerable value 9.8m/s^2(1G), Momentary stationary tolerable value 29.4m/s^2(3G)	
Required cooling capacity (*2)[W]		5230	
Cooling oil amount[l/min (20°C)]		15	

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

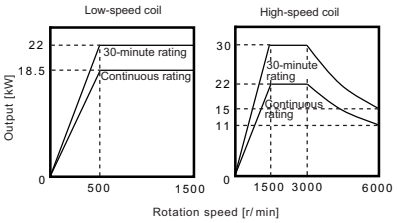
(*2) The value for the short-time rated output is shown for the required cooling capacity. Install a cooling jacket around the stator and use fluid cooling (oil cooling).

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

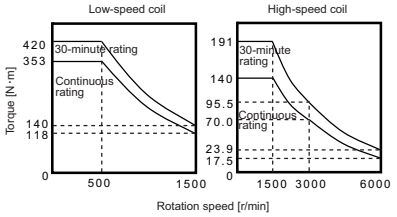
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Output at steady state - rotation speed characteristics



Torque at steady state-rotation speed characteristics



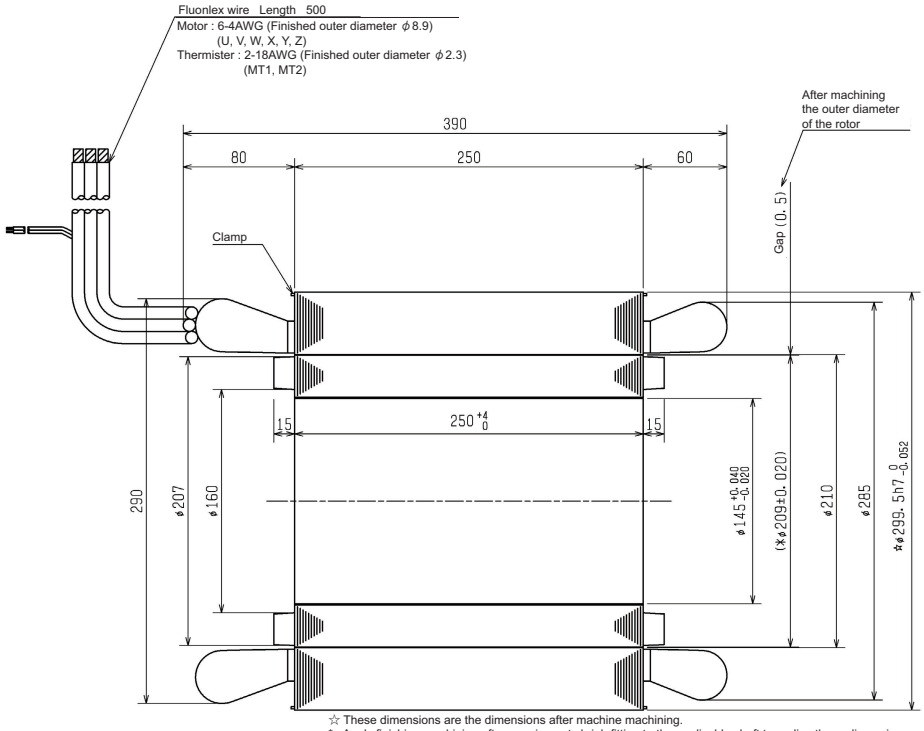
Output at acceleration/deceleration-rotation speed characteristics

120% of the 30-minute rating characteristics is output at the time of acceleration/deceleration.

Torque at acceleration/deceleration-rotation speed characteristics

120% of the 30-minute rating characteristics is torque at the time of acceleration/deceleration.

Outline dimension drawings [Unit : mm]



☆ These dimensions are the dimensions after machine machining.
* Apply finishing machining after carrying out shrink-fitting to the applicable shaft to realize these dimensions.
( ) These are reference values.

Built-in IM spindle motor

SJ-2B6702TK

Specifications

Item		Specifications	
Compatible spindle drive unit (*1)		MDS-D-SP-320	
AC reactor for spindle motor		-	
Coil changeover		Low-speed coil	High-speed coil
Output capacity[kW]	Continuous rated output	15	15
	Short time rated output	18.5(30-minute rating)	18.5(30-minute rating)
	Standard output during acceleration/deceleration	26	30
	Actual acceleration/deceleration output (*3)	31.2	36
Base rotation speed	Continuous[r/min]	480	1100
	Short time[r/min]	480	1100
Maximum rotation speed[r/min]		2000	6000
Frame No.		180-295	
Torque (Base rotation speed)	Continuous[N・m]	298	130
	Short time[N・m]	368	161
Rotor GD^2 [kg・m^2]		1.48	
Rotor inertia moment[kg・m^2]		0.37	
Mass	Stator[kg]	83	
	Rotor[kg]	49	
Overload capacity (for one minute)		120% of short-time rated output	
Ambient temperature[°C]		0 to 40	
Heat-resistant class		F(155°C)	
Tolerable vibration		Maximum stationary tolerable value 9.8m/s^2(1G), Momentary stationary tolerable value 29.4m/s^2(3G)	
Required cooling capacity (*2)[W]		8450	
Cooling oil amount[l/min (20°C)]		15	

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

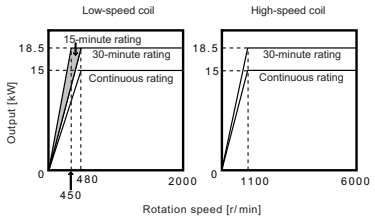
(*2) The value for the short-time rated output is shown for the required cooling capacity. Install a cooling jacket around the stator and use fluid cooling (oil cooling).

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

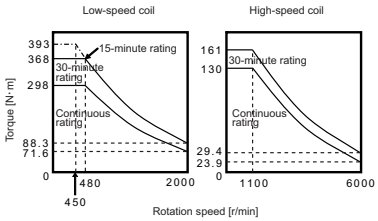
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

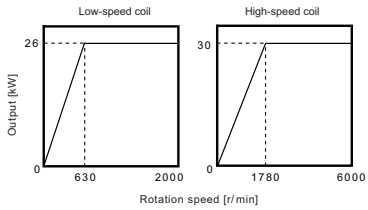
Output at steady state - rotation speed characteristics



Torque at steady state-rotation speed characteristics

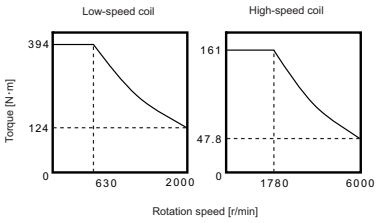


Output at acceleration/deceleration-rotation speed characteristics



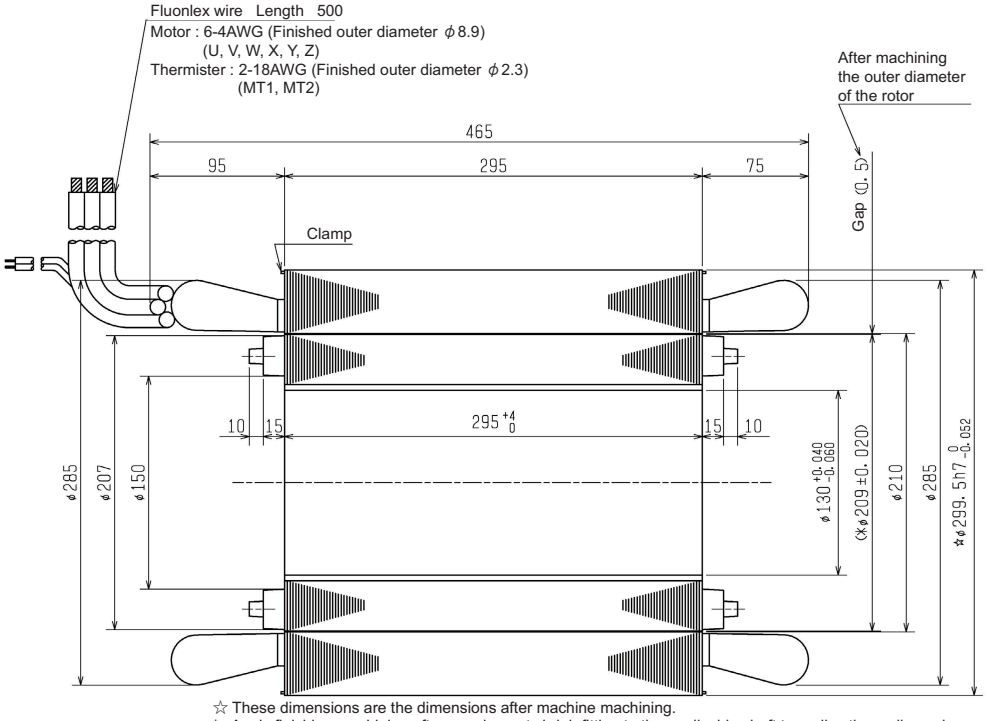
120% of this characteristics is output at the time of actual acceleration/deceleration.

Torque at acceleration/deceleration-rotation speed characteristics



120% of this characteristics is torque at the time of actual acceleration/deceleration.

Outline dimension drawings [Unit : mm]



☆ These dimensions are the dimensions after machine machining.
* Apply finishing machining after carrying out shrink-fitting to the applicable shaft to realize these dimensions.
( ) These are reference values.

Built-in IM spindle motor

SJ-2B6704TK

Specifications

Item		Specifications	
Compatible spindle drive unit (*1)		MDS-D-SP-320	
AC reactor for spindle motor		-	
Coil changeover		Low-speed coil	High-speed coil
Output capacity[kW]	Continuous rated output	15	22
	Short time rated output	22(30-minute rating)	30(30-minute rating)
	Standard output during acceleration/deceleration	22	30
	Actual acceleration/deceleration output (*3)	26.4	36
Base rotation speed	Continuous[r/min]	475	1200
	Short time[r/min]	475	1200
Maximum rotation speed[r/min]		1150	6000
Frame No.		180-295	
Torque (Base rotation speed)	Continuous[N・m]	302	175
	Short time[N・m]	442	239
Rotor GD^2 [kg・m^2]		1.48	
Rotor inertia moment[kg・m^2]		0.37	
Mass	Stator[kg]	83	
	Rotor[kg]	49	
Overload capacity (for one minute)		120% of short-time rated output	
Ambient temperature[°C]		0 to 40	
Heat-resistant class		F(155°C)	
Tolerable vibration		Maximum stationary tolerable value 9.8m/s^2(1G), Momentary stationary tolerable value 29.4m/s^2(3G)	
Required cooling capacity (*2)[W]		5210	
Cooling oil amount[l/min (20°C)]		15	

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

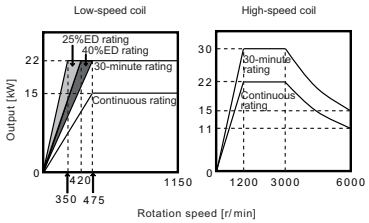
(*2) The value for the short-time rated output is shown for the required cooling capacity. Install a cooling jacket around the stator and use fluid cooling (oil cooling).

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

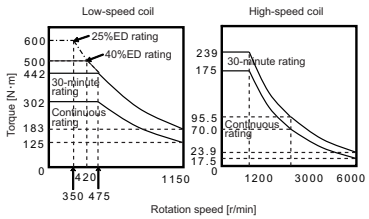
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Output at steady state - rotation speed characteristics



Torque at steady state-rotation speed characteristics



Output at acceleration/deceleration-rotation speed characteristics

Low-speed coil
120% of the 25%ED rating characteristics is output at the time of acceleration/deceleration.

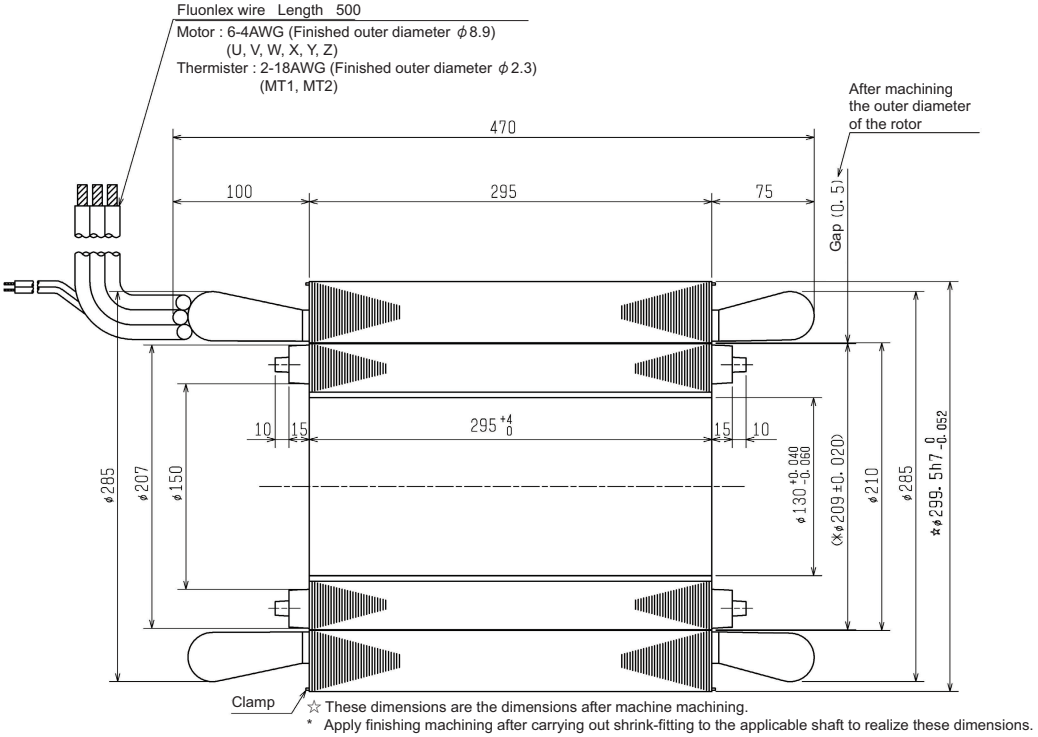
High-speed coil
120% of the 30-minute rating characteristics is output at the time of acceleration/deceleration.

Torque at acceleration/deceleration-rotation speed characteristics

Low-speed coil
120% of the 25%ED rating characteristics is torque at the time of acceleration/deceleration.

High-speed coil
120% of the 30-minute rating characteristics is torque at the time of acceleration/deceleration.

Outline dimension drawings [Unit : mm]



Built-in IM spindle motor

SJ-2B6709TK

Specifications

Item		Specifications	
Compatible spindle drive unit (*1)		MDS-D-SP-400	
AC reactor for spindle motor		-	
Coil changeover		Low-speed coil	High-speed coil
Output capacity[kW]	Continuous rated output	15	22
	Short time rated output	22(30-minute rating)	30(30-minute rating)
	Standard output during acceleration/deceleration	22	30
	Actual acceleration/deceleration output (*3)	26.4	36
Base rotation speed	Continuous[r/min]	350	1000
	Short time[r/min]	420	1000
Maximum rotation speed[r/min]		1500	6000
Frame No.		180-295	
Torque (Base rotation speed)	Continuous[N・m]	409	210
	Short time[N・m]	500	286
Rotor GD^2 [kg・m^2]		1.48	
Rotor inertia moment[kg・m^2]		0.37	
Mass	Stator[kg]	83	
	Rotor[kg]	49	
Overload capacity (for one minute)		120% of short-time rated output	
Ambient temperature[°C]		0 to 40	
Heat-resistant class		F(155°C)	
Tolerable vibration		Maximum stationary tolerable value 9.8m/s^2(1G), Momentary stationary tolerable value 29.4m/s^2(3G)	
Required cooling capacity (*2)[W]		6180	
Cooling oil amount[l/min (20°C)]		15	

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

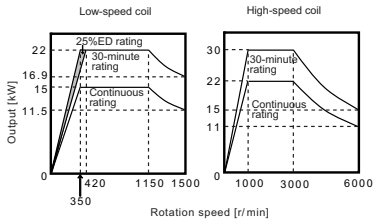
(*2) The value for the short-time rated output is shown for the required cooling capacity. Install a cooling jacket around the stator and use fluid cooling (oil cooling).

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

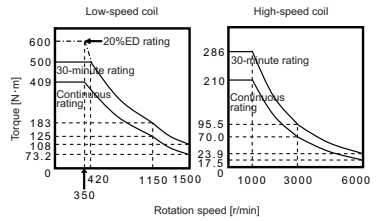
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Output at steady state - rotation speed characteristics



Torque at steady state-rotation speed characteristics



Output at acceleration/deceleration-rotation speed characteristics

Low-speed coil
120% of the 25%ED rating characteristics is output
at the time of acceleration/deceleration.

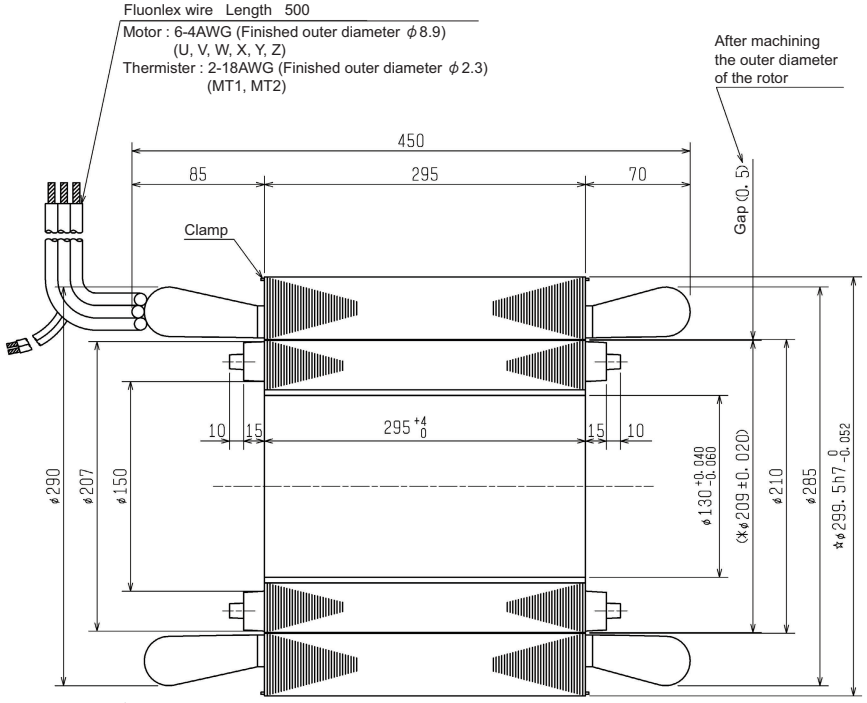
High-speed coil
120% of the 30-minute rating characteristics is output
at the time of acceleration/deceleration.

Torque at acceleration/deceleration-rotation speed characteristics

Low-speed coil
120% of the 25%ED rating characteristics is torque
at the time of acceleration/deceleration.

High-speed coil
120% of the 30-minute rating characteristics is torque
at the time of acceleration/deceleration.

Outline dimension drawings [Unit : mm]



☆ These dimensions are the dimensions after machine machining.
* Apply finishing machining after carrying out shrink-fitting to the applicable shaft to realize these dimensions.
( ) These are reference values.

Built-in IM spindle motor

SJ-2B6802TK

Specifications

Item		Specifications	
Compatible spindle drive unit (*1)		MDS-D-SP-640	
AC reactor for spindle motor		-	
Coil changeover		Low-speed coil	High-speed coil
Output capacity[kW]	Continuous rated output	30	30
	Short time rated output	37(30-minute rating)	37(30-minute rating)
	Standard output during acceleration/deceleration	37	
	Actual acceleration/deceleration output (*3)	44.4	
Base rotation speed	Continuous[r/min]	400	650
	Short time[r/min]	400	650
Maximum rotation speed[r/min]		1000	3200
Frame No.		200-350	
Torque (Base rotation speed)	Continuous[N・m]	716	441
	Short time[N・m]	883	544
Rotor GD^2 [kg・m^2]		2.70	
Rotor inertia moment[kg・m^2]		0.675	
Mass	Stator[kg]	116	
	Rotor[kg]	72	
Overload capacity (for one minute)		120% of short-time rated output	
Ambient temperature[°C]		0 to 40	
Heat-resistant class		F(155°C)	
Tolerable vibration		Maximum stationary tolerable value 9.8m/s^2(1G), Momentary stationary tolerable value 29.4m/s^2(3G)	
Required cooling capacity (*2)[W]		8450	
Cooling oil amount[l/min (20°C)]		15	

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

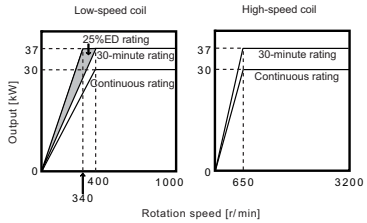
(*2) The value for the short-time rated output is shown for the required cooling capacity. Install a cooling jacket around the stator and use fluid cooling (oil cooling).

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

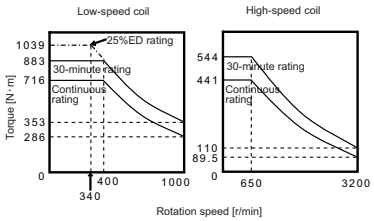
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Output at steady state - rotation speed characteristics



Torque at steady state-rotation speed characteristics



Output at acceleration/deceleration-rotation speed characteristics

Low-speed coil
120% of the 25%ED rating characteristics is output at the time of acceleration/deceleration.

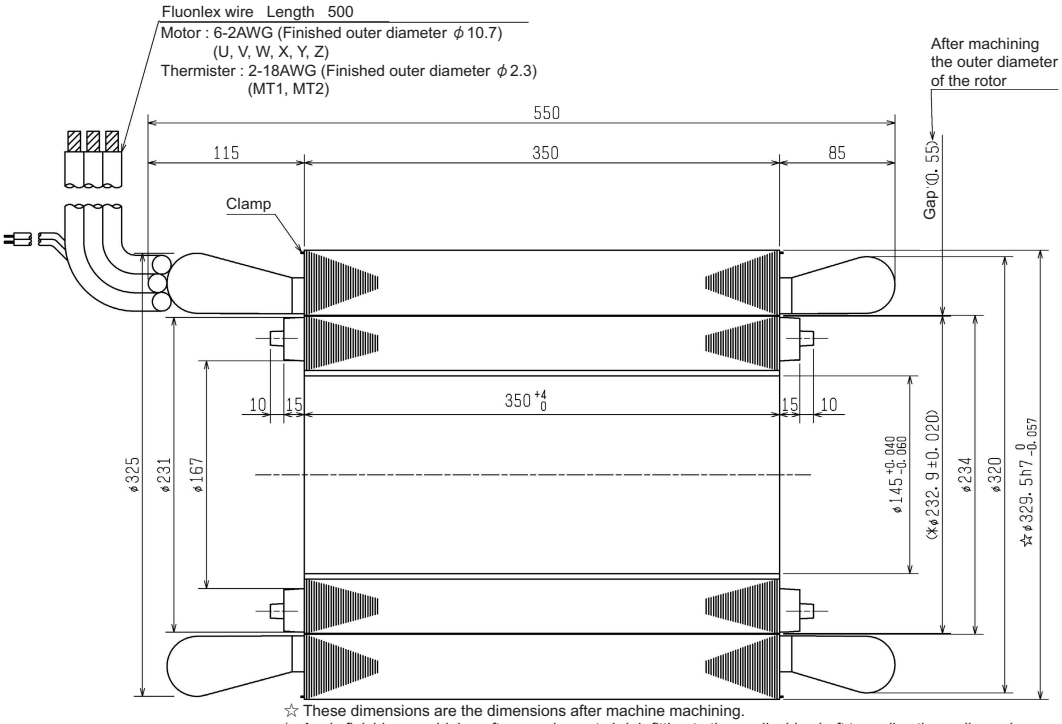
High-speed coil
120% of the 30-minute rating characteristics is output at the time of acceleration/deceleration.

Torque at acceleration/deceleration-rotation speed characteristics

Low-speed coil
120% of the 25%ED rating characteristics is torque at the time of acceleration/deceleration.

High-speed coil
120% of the 30-minute rating characteristics is torque at the time of acceleration/deceleration.

Outline dimension drawings [Unit : mm]



☆ These dimensions are the dimensions after machine machining.
* Apply finishing machining after carrying out shrink-fitting to the applicable shaft to realize these dimensions.
( ) These are reference values.

Built-in IM spindle motor

SJ-2B6905TK

Specifications

Item		Specifications	
Compatible spindle drive unit (*1)		MDS-D-SP-320	
AC reactor for spindle motor		-	
Coil changeover		Low-speed coil	High-speed coil
Output capacity[kW]	Continuous rated output	22	22
	Short time rated output	26(30-minute rating)	26(30-minute rating)
	Standard output during acceleration/deceleration	26	
	Actual acceleration/deceleration output (*3)	31.2	
Base rotation speed	Continuous[r/min]	420	1000
	Short time[r/min]	420	1000
Maximum rotation speed[r/min]		1500	4000
Frame No.		225-270	
Torque (Base rotation speed)	Continuous[N・m]	500	210
	Short time[N・m]	591	248
Rotor GD^2 [kg・m^2]		3.41	
Rotor inertia moment[kg・m^2]		0.853	
Mass	Stator[kg]	110	
	Rotor[kg]	70	
Overload capacity (for one minute)		120% of short-time rated output	
Ambient temperature[°C]		0 to 40	
Heat-resistant class		F(155°C)	
Tolerable vibration		Maximum stationary tolerable value 9.8m/s^2(1G), Momentary stationary tolerable value 29.4m/s^2(3G)	
Required cooling capacity (*2)[W]		4040	
Cooling oil amount[l/min (20°C)]		10	

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

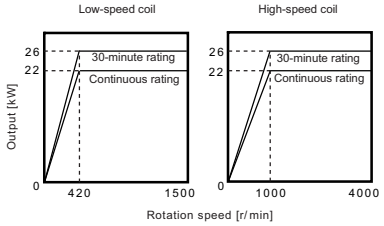
(*2) The value for the short-time rated output is shown for the required cooling capacity. Install a cooling jacket around the stator and use fluid cooling (oil cooling).

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

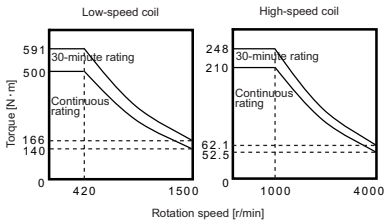
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Output at steady state - rotation speed characteristics



Torque at steady state-rotation speed characteristics



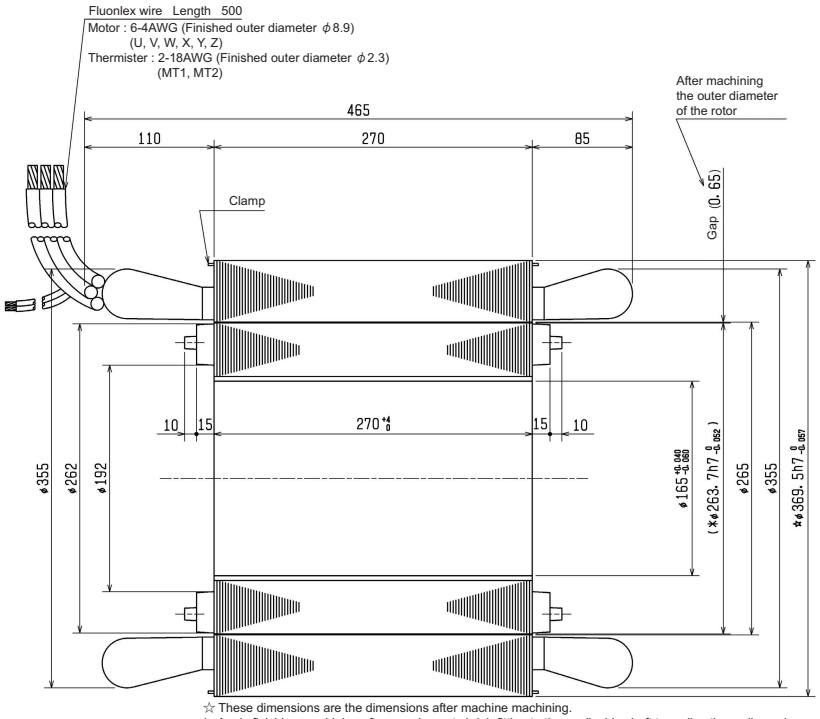
Output at acceleration/deceleration-rotation speed characteristics

120% of the 30-minute rating characteristics is output at the time of acceleration/deceleration.

Torque at acceleration/deceleration-rotation speed characteristics

120% of the 30-minute rating characteristics is torque at the time of acceleration/deceleration.

Outline dimension drawings [Unit : mm]



☆ These dimensions are the dimensions after machine machining.
* Apply finishing machining after carrying out shrink-fitting to the applicable shaft to realize these dimensions.
( ) These are reference values.

Built-in IM spindle motor

SJ-2B6904TK

Specifications

Item		Specifications	
Compatible spindle drive unit (*1)		MDS-D-SP-640	
AC reactor for spindle motor		-	
Coil changeover		Low-speed coil	High-speed coil
Output capacity[kW]	Continuous rated output	30	30
	Short time rated output	37(30-minute rating)	37(30-minute rating)
	Standard output during acceleration/deceleration	37	45
	Actual acceleration/deceleration output (*3)	44.4	54
Base rotation speed	Continuous[r/min]	600	1028
	Short time[r/min]	600	1028
Maximum rotation speed[r/min]		1500	3000
Frame No.		225-270	
Torque (Base rotation speed)	Continuous[N・m]	477	279
	Short time[N・m]	589	344
Rotor GD^2 [kg・m^2]		3.41	
Rotor inertia moment[kg・m^2]		0.853	
Mass	Stator[kg]	110	
	Rotor[kg]	70	
Overload capacity (for one minute)		120% of short-time rated output	
Ambient temperature[°C]		0 to 40	
Heat-resistant class		F(155°C)	
Tolerable vibration		Maximum stationary tolerable value 9.8m/s^2(1G), Momentary stationary tolerable value 29.4m/s^2(3G)	
Required cooling capacity (*2)[W]		4280	
Cooling oil amount[l/min (20°C)]		10	

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

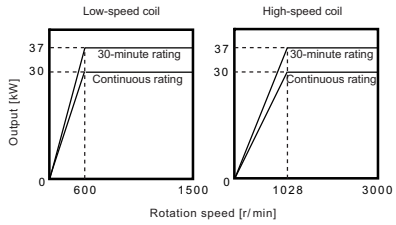
(*2) The value for the short-time rated output is shown for the required cooling capacity. Install a cooling jacket around the stator and use fluid cooling (oil cooling).

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

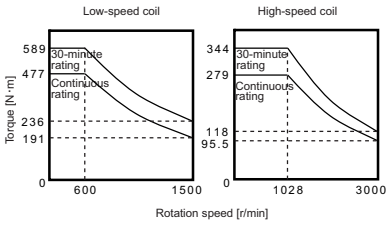
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

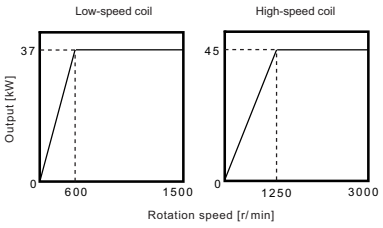
Output at steady state - rotation speed characteristics



Torque at steady state-rotation speed characteristics

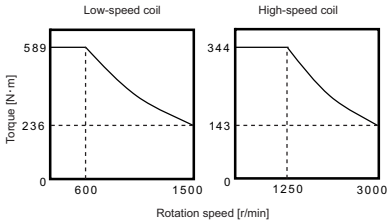


Output at acceleration/deceleration-rotation speed characteristics



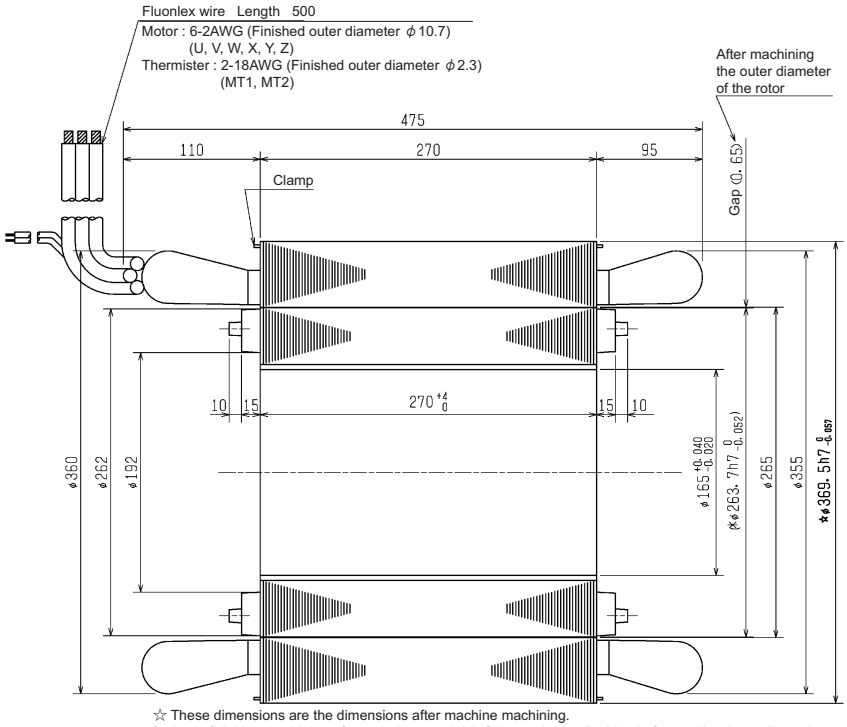
120% of this characteristics is output at the time of actual acceleration/deceleration.

Torque at acceleration/deceleration-rotation speed characteristics



120% of this characteristics is torque at the time of actual acceleration/deceleration.

Outline dimension drawings [Unit : mm]



☆ These dimensions are the dimensions after machine machining.
* Apply finishing machining after carrying out shrink-fitting to the applicable shaft to realize these dimensions.
( ) These are reference values.

Built-in IM spindle motor

SJ-2B6908TK

Specifications

Item		Specifications	
Compatible spindle drive unit (*1)		MDS-D-SP-320	
AC reactor for spindle motor		-	
Coil changeover		Low-speed coil	High-speed coil
Output capacity[kW]	Continuous rated output	15	22
	Short time rated output	22(50%ED rating)	30(50%ED rating)
	Standard output during acceleration/deceleration	22	30
	Actual acceleration/deceleration output (*3)	26.4	36
Base rotation speed	Continuous[r/min]	175	450
	Short time[r/min]	175	450
Maximum rotation speed[r/min]		1000	3300
Frame No.		225-350	
Torque (Base rotation speed)	Continuous[N・m]	819	467
	Short time[N・m]	1200	637
Rotor GD^2 [kg・m^2]		4.42	
Rotor inertia moment[kg・m^2]		1.105	
Mass	Stator[kg]	143	
	Rotor[kg]	91	
Overload capacity (for one minute)		120% of short-time rated output	
Ambient temperature[°C]		0 to 40	
Heat-resistant class		F(155°C)	
Tolerable vibration		Maximum stationary tolerable value 9.8m/s^2(1G), Momentary stationary tolerable value 29.4m/s^2(3G)	
Required cooling capacity (*2)[W]		9920	
Cooling oil amount[l/min (20°C)]		15	

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

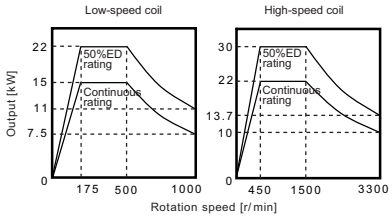
(*2) The value for the short-time rated output is shown for the required cooling capacity. Install a cooling jacket around the stator and use fluid cooling (oil cooling).

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

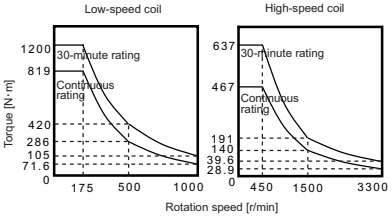
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Output at steady state - rotation speed characteristics



Torque at steady state-rotation speed characteristics



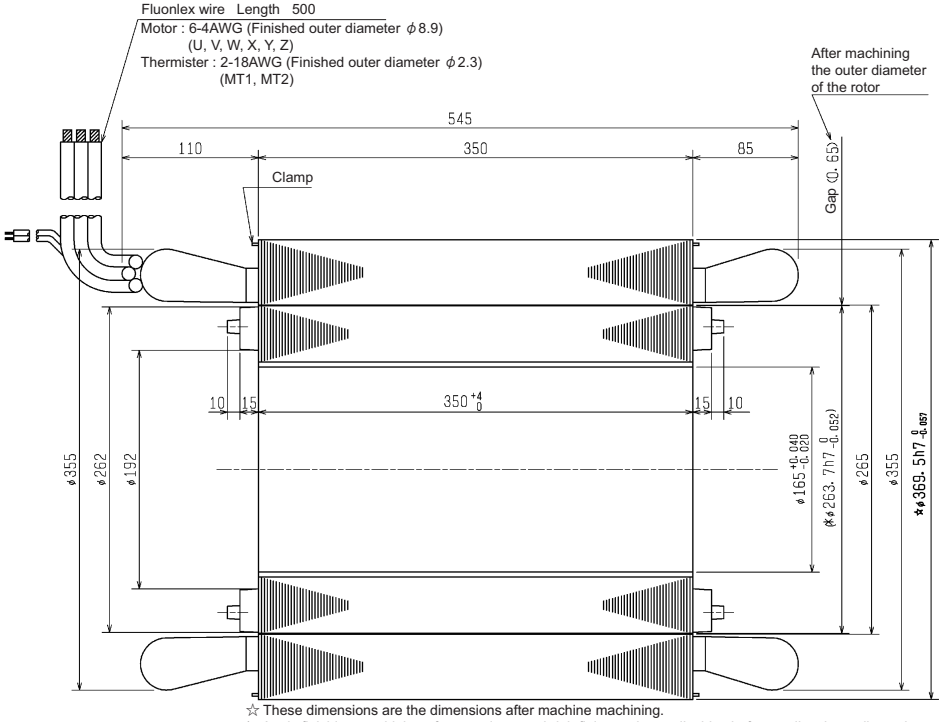
Output at acceleration/deceleration-rotation speed characteristics

120% of the 50%ED rating characteristics is output at the time of acceleration/deceleration.

Torque at acceleration/deceleration-rotation speed characteristics

120% of the 50%ED rating characteristics is torque at the time of acceleration/deceleration.

Outline dimension drawings [Unit : mm]



☆ These dimensions are the dimensions after machine machining.
* Apply finishing machining after carrying out shrink-fitting to the applicable shaft to realize these dimensions.
( ) These are reference values.

Built-in IM spindle motor

SJ-2B6906TK

Specifications

Item		Specifications	
Compatible spindle drive unit (*1)		MDS-D-SP-400	
AC reactor for spindle motor		-	
Coil changeover		Low-speed coil	High-speed coil
Output capacity[kW]	Continuous rated output	15	30
	Short time rated output	22(30-minute rating)	37(30-minute rating)
	Standard output during acceleration/deceleration	22	37
	Actual acceleration/deceleration output (*3)	26.4	44.4
Base rotation speed	Continuous[r/min]	175	600
	Short time[r/min]	175	600
Maximum rotation speed[r/min]		1000	3300
Frame No.		225-350	
Torque (Base rotation speed)	Continuous[N・m]	819	477
	Short time[N・m]	1200	589
Rotor GD^2 [kg・m^2]		4.42	
Rotor inertia moment[kg・m^2]		1.105	
Mass	Stator[kg]	143	
	Rotor[kg]	91	
Overload capacity (for one minute)		120% of short-time rated output	
Ambient temperature[°C]		0 to 40	
Heat-resistant class		F(155°C)	
Tolerable vibration		Maximum stationary tolerable value 9.8m/s^2(1G), Momentary stationary tolerable value 29.4m/s^2(3G)	
Required cooling capacity (*2)[W]		9820	
Cooling oil amount[l/min (20°C)]		15	

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

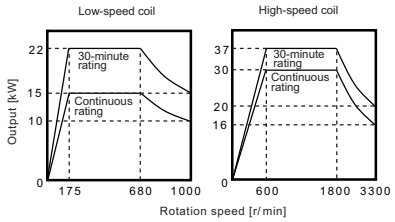
(*2) The value for the short-time rated output is shown for the required cooling capacity. Install a cooling jacket around the stator and use fluid cooling (oil cooling).

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

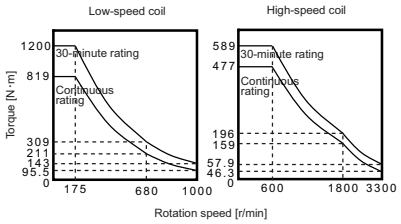
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Output at steady state - rotation speed characteristics



Torque at steady state-rotation speed characteristics



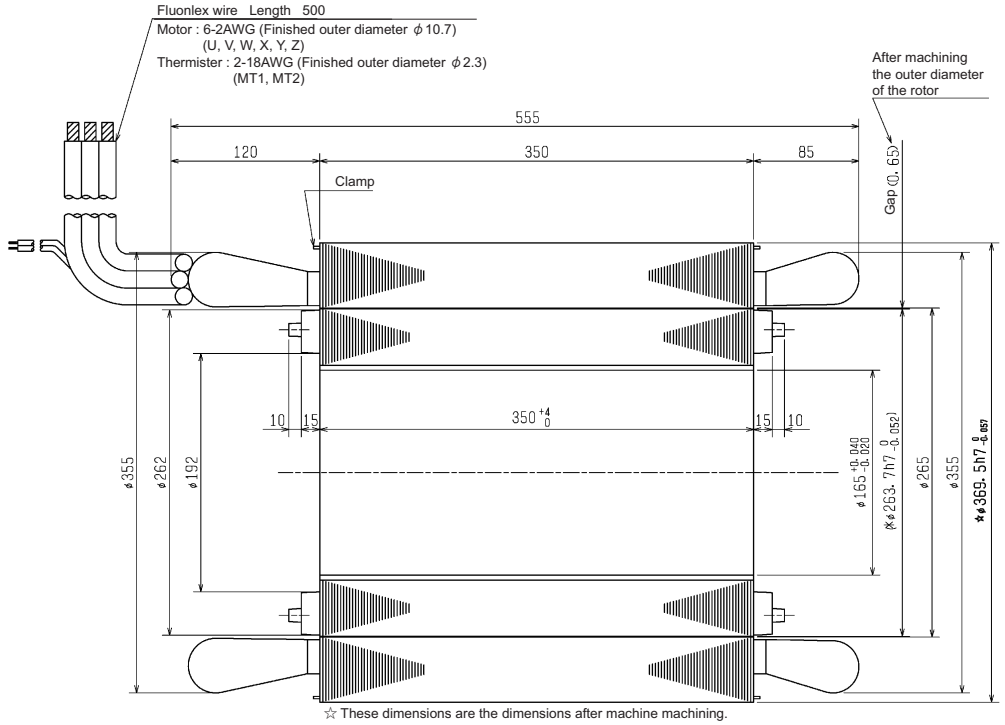
Output at acceleration/deceleration-rotation speed characteristics

120% of the 30-minute rating characteristics is output at the time of acceleration/deceleration.

Torque at acceleration/deceleration-rotation speed characteristics

120% of the 30-minute rating characteristics is torque at the time of acceleration/deceleration.

Outline dimension drawings [Unit : mm]



☆ These dimensions are the dimensions after machine machining.
* Apply finishing machining after carrying out shrink-fitting to the applicable shaft to realize these dimensions.
( ) These are reference values.

Built-in IM spindle motor

SJ-2B6914TK

Specifications

Item		Specifications	
Compatible spindle drive unit (*1)		MDS-D-SP-640	
AC reactor for spindle motor		-	
Coil changeover		Low-speed coil	High-speed coil
Output capacity[kW]	Continuous rated output	25	25
	Short time rated output	30(30-minute rating)	30(30-minute rating)
	Standard output during acceleration/deceleration	30	45
	Actual acceleration/deceleration output (*3)	36	54
Base rotation speed	Continuous[r/min]	240	470
	Short time[r/min]	240	470
Maximum rotation speed[r/min]		1000	3300
Frame No.		225-350	
Torque (Base rotation speed)	Continuous[N・m]	995	508
	Short time[N・m]	1194	610
Rotor GD^2 [kg・m^2]		4.42	
Rotor inertia moment[kg・m^2]		1.105	
Mass	Stator[kg]	143	
	Rotor[kg]	91	
Overload capacity (for one minute)		120% of short-time rated output	
Ambient temperature[°C]		0 to 40	
Heat-resistant class		F(155°C)	
Tolerable vibration		Maximum stationary tolerable value 9.8m/s^2(1G), Momentary stationary tolerable value 29.4m/s^2(3G)	
Required cooling capacity (*2)[W]		9480	
Cooling oil amount[l/min (20°C)]		15	

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

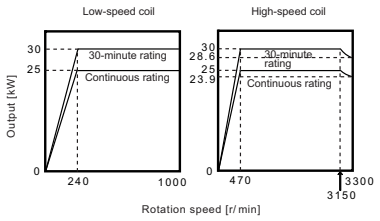
(*2) The value for the short-time rated output is shown for the required cooling capacity. Install a cooling jacket around the stator and use fluid cooling (oil cooling).

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

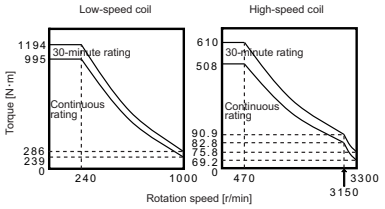
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

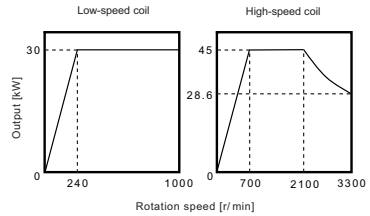
Output at steady state - rotation speed characteristics



Torque at steady state-rotation speed characteristics

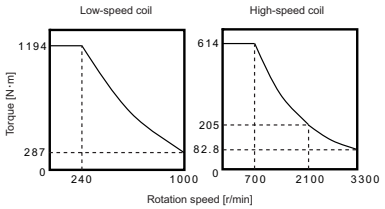


Output at acceleration/deceleration-rotation speed characteristics



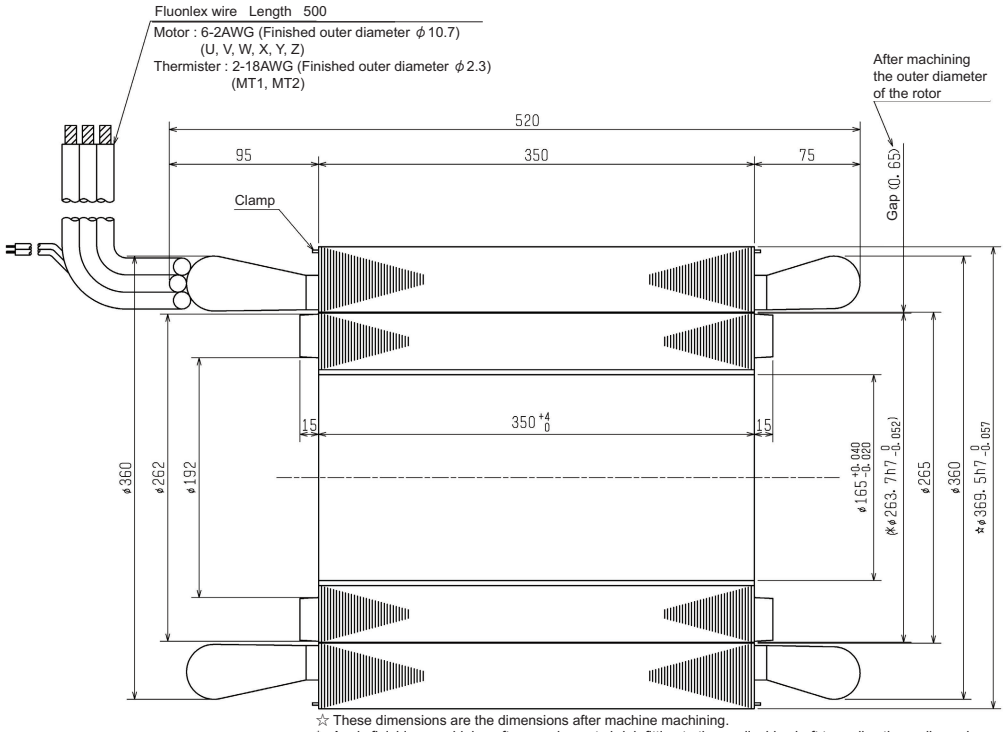
120% of this characteristics is output at the time of actual acceleration/deceleration.

Torque at acceleration/deceleration-rotation speed characteristics



120% of this characteristics is torque at the time of actual acceleration/deceleration.

Outline dimension drawings [Unit : mm]



☆ These dimensions are the dimensions after machine machining.
* Apply finishing machining after carrying out shrink-fitting to the applicable shaft to realize these dimensions.
( ) These are reference values.

Built-in IM spindle motor

SJ-PMB02215T-02

Specifications

Item		Specifications
Compatible spindle drive unit (*1)		MDS-D-SP-240
AC reactor for spindle motor		-
Coil changeover		-
Output capacity[kW]	Continuous rated output	3.5
	Short time rated output	5.5(50%ED rating)
	Standard output during acceleration/deceleration	5.5
	Actual acceleration/deceleration output (*3)	6.6
Base rotation speed	Continuous[r/min]	1500
	Short time[r/min]	1500
Maximum rotation speed[r/min]		10000
Frame No.		80
Torque (Base rotation speed)	Continuous[N・m]	22.3
	Short time[N・m]	35.0
Rotor GD^2 [kg・m^2]		0.024
Rotor inertia moment[kg・m^2]		0.006
Mass	Stator[kg]	4.4
	Rotor[kg]	3.7
Overload capacity (for one minute)		120% of short-time rated output
Ambient temperature[°C]		0 to 40
Heat-resistant class		F(155°C)
Tolerable vibration		Maximum stationary tolerable value 9.8m/s^2(1G), Momentary stationary tolerable value 29.4m/s^2(3G)
Required cooling capacity (*2)[W]		1400
Cooling oil amount[l/min (20°C)]		5

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

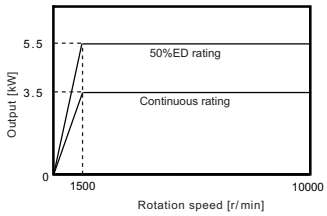
(*2) The value for the short-time rated output is shown for the required cooling capacity. Install a cooling jacket around the stator and use fluid cooling (oil cooling).

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

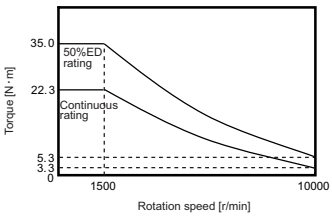
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Output at steady state - rotation speed characteristics



Torque at steady state-rotation speed characteristics



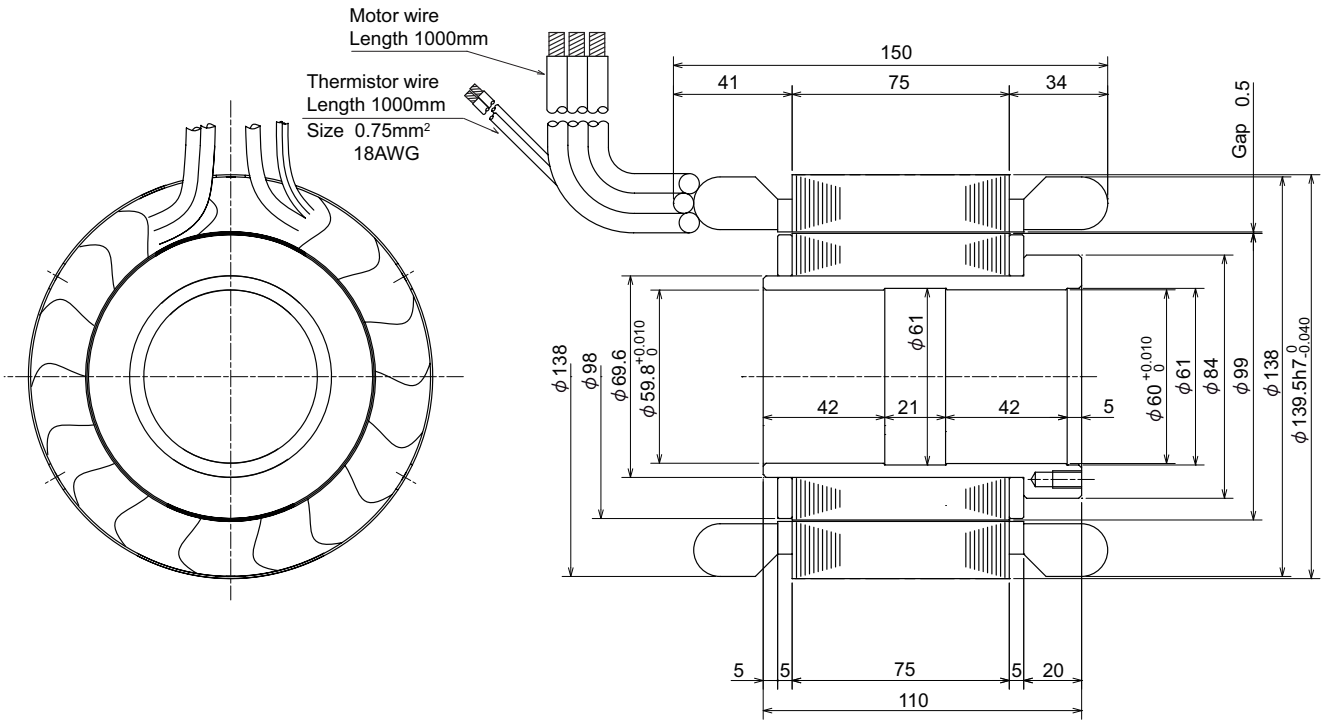
Output at acceleration/deceleration-rotation speed characteristics

120% of the 50%ED rating characteristics is output at the time of acceleration/deceleration.

Torque at acceleration/deceleration-rotation speed characteristics

120% of the 50%ED rating characteristics is torque at the time of acceleration/deceleration.

Outline dimension drawings [Unit : mm]



Built-in IM spindle motor

SJ-PMB04412T-B0

Specifications

Item		Specifications	
Compatible spindle drive unit (*1)		MDS-D-SP-200	
AC reactor for spindle motor		-	
Coil changeover		Low-speed coil	High-speed coil
Output capacity[kW]	Continuous rated output	5.5	5.5
	Short time rated output	7.5(25%ED rating)	7.5(25%ED rating)
	Standard output during acceleration/deceleration	7.5	
	Actual acceleration/deceleration output (*3)	9	
Base rotation speed	Continuous[r/min]	1200	3000
	Short time[r/min]	1200	3000
Maximum rotation speed[r/min]		3000	8000
Frame No.		112	
Torque (Base rotation speed)	Continuous[N・m]	43.8	17.5
	Short time[N・m]	59.7	23.9
Rotor GD^2 [kg・m^2]		0.0649	
Rotor inertia moment[kg・m^2]		0.0162	
Mass	Stator[kg]	14.0	
	Rotor[kg]	8.0	
Overload capacity (for one minute)		120% of short-time rated output	
Ambient temperature[°C]		0 to 40	
Heat-resistant class		F(155°C)	
Tolerable vibration		Maximum stationary tolerable value 9.8m/s^2(1G), Momentary stationary tolerable value 29.4m/s^2(3G)	
Required cooling capacity (*2)[W]		1200	
Cooling oil amount[l/min (20°C)]		5	

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

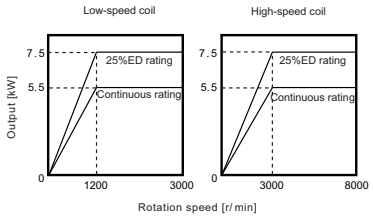
(*2) The value for the short-time rated output is shown for the required cooling capacity. Install a cooling jacket around the stator and use fluid cooling (oil cooling).

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

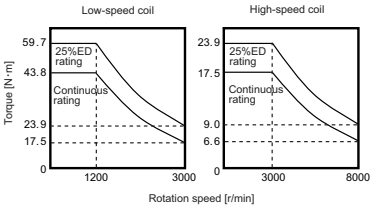
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Output at steady state - rotation speed characteristics



Torque at steady state-rotation speed characteristics



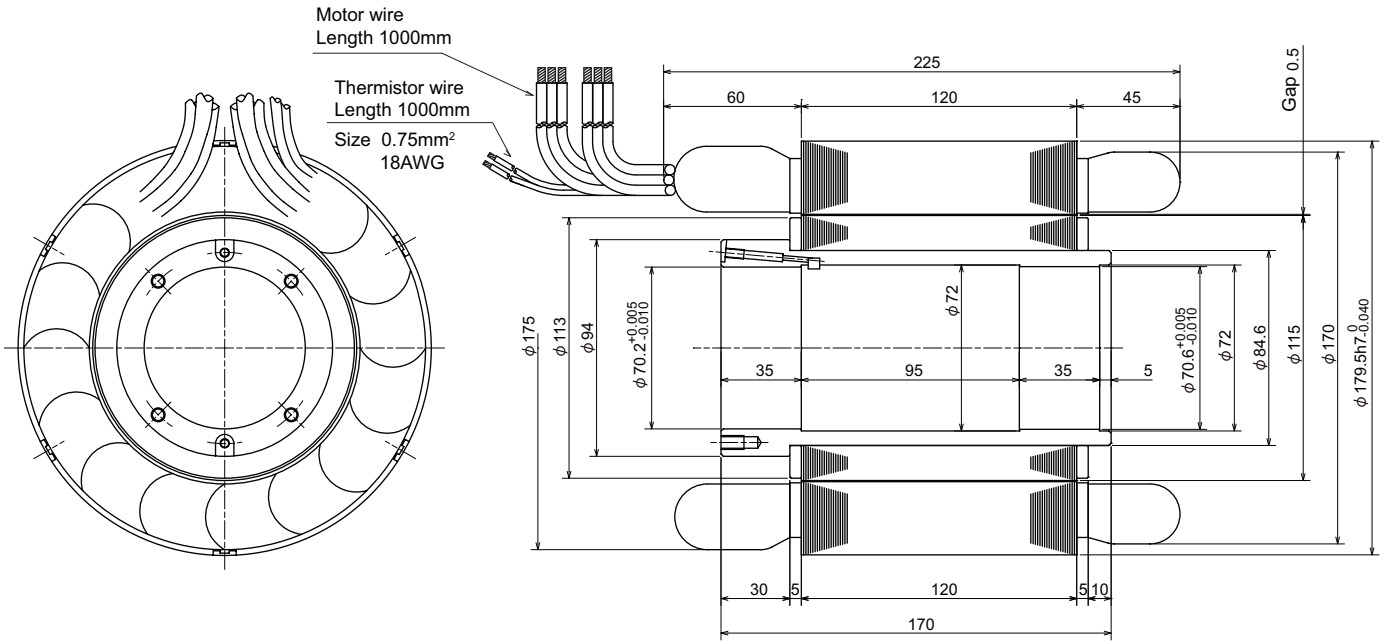
Output at acceleration/deceleration-rotation speed characteristics

120% of the 25%ED rating characteristics is output at the time of acceleration/deceleration.

Torque at acceleration/deceleration-rotation speed characteristics

120% of the 25%ED rating characteristics is torque at the time of acceleration/deceleration.

Outline dimension drawings [Unit : mm]



Built-in IM spindle motor

SJ-PMB14007T-01

Specifications

Item		Specifications	
Compatible spindle drive unit (*1)		MDS-D-SP-320	
AC reactor for spindle motor		-	
Coil changeover		Low-speed coil	High-speed coil
Output capacity[kW]	Continuous rated output	11	11
	Short time rated output	15(15%ED rating)	15(15%ED rating)
	Standard output during acceleration/deceleration	15	
	Actual acceleration/deceleration output (*3)	18	
Base rotation speed	Continuous[r/min]	750	1800
	Short time[r/min]	750	1800
Maximum rotation speed[r/min]		1800	6000
Frame No.		160	
Torque (Base rotation speed)	Continuous[N・m]	140	58.4
	Short time[N・m]	191(15%ED rating)	79.6(15%ED rating)
Rotor GD^2 [kg・m^2]		0.253	
Rotor inertia moment[kg・m^2]		0.0633	
Mass	Stator[kg]	30	
	Rotor[kg]	15	
Overload capacity (for one minute)		120% of short-time rated output	
Ambient temperature[°C]		0 to 40	
Heat-resistant class		F(155°C)	
Tolerable vibration		Maximum stationary tolerable value 9.8m/s^2(1G), Momentary stationary tolerable value 29.4m/s^2(3G)	
Required cooling capacity (*2)[W]		1500	
Cooling oil amount[l/min (20°C)]		5	

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

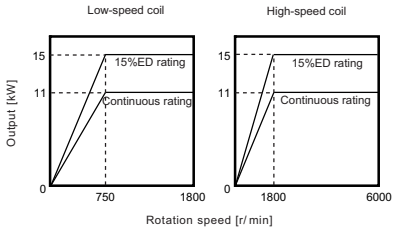
(*2) The value for the short-time rated output is shown for the required cooling capacity. Install a cooling jacket around the stator and use fluid cooling (oil cooling).

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

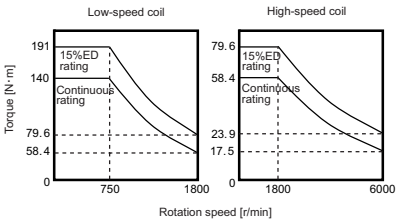
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Output at steady state - rotation speed characteristics



Torque at steady state-rotation speed characteristics



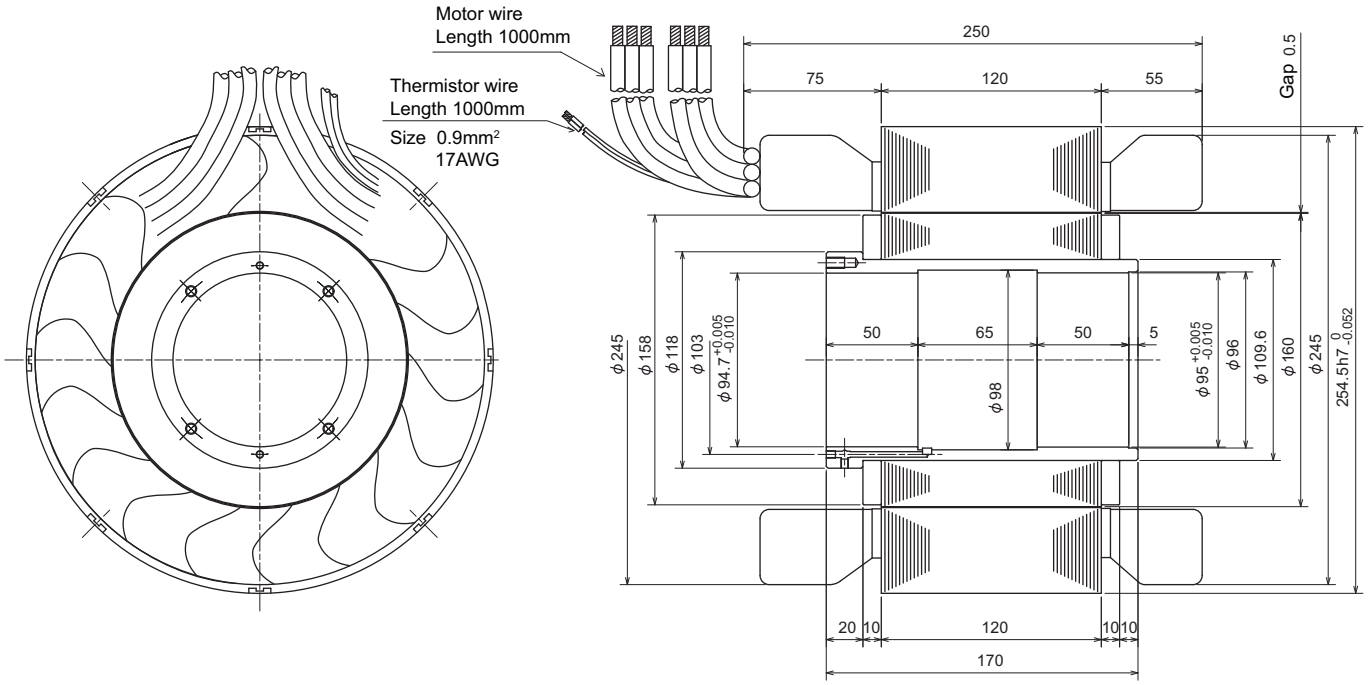
Output at acceleration/deceleration-rotation speed characteristics

120% of the 15%ED rating characteristics is output at the time of acceleration/deceleration.

Torque at acceleration/deceleration-rotation speed characteristics

120% of the 15%ED rating characteristics is torque at the time of acceleration/deceleration.

Outline dimension drawings [Unit : mm]



Tool spindle motor

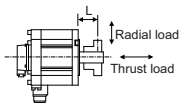
Rated torque	Rated rotation speed	Tool spindle motor type	Option		
0.64N・m	6000r/min	HF-KP46 J ☐ W09 (1)	(1) Keyway	K	With keyway (with key)
				None	Without keyway

Specifications

Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-D-SP-20
	2-axis type	MDS-D-SP2-2020 (L,M) MDS-D-SP2-4020 (M)
	3-axis type	-
	Multi axis integrated type	-
	Regenerative resistor type	MDS-D-SPJ3-075/075NA
Continuous characteristics	Rated output[kW]	0.4
	Rated current[A]	1.5
	Rated torque[N・m]	0.64
Maximum momentary output (For power supply selection)[kW]		0.9
Rated rotation speed[r/min]		6000
Maximum rotation speed[r/min]		6000
Maximum current[A]		5.5
Maximum torque[N・m]		2.5
Motor inertia[$\times 10^{-4}$ kg•m^2]		0.24
Mass[kg]		1.2
Heat-resistant class		130(B)
Degree of protection		IP67 (The shaft-through portion is excluded.)
Quakeproof level[m/s^2] ([G])		X:49(5), Y:49(5)
Axis tolerable load	Radial load (*2)[N] ([mm])	245 (L=30)
	Thrust load[N]	98
Encoder	260,000 p/rev (W09)	MDS-D-SP MDS-D-SP2 MDS-D-SPJ3

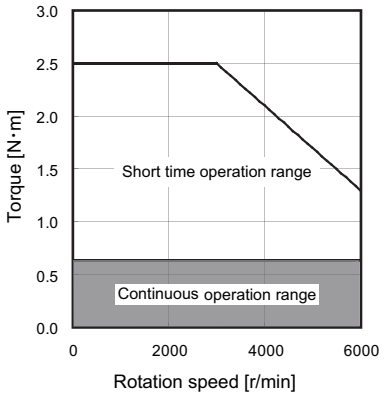
(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)

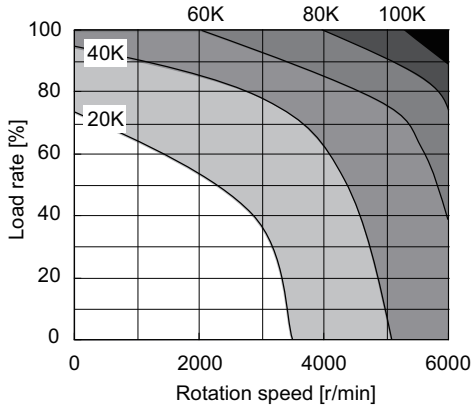


L : Length from flange installation surface to center of load weight [mm]

Torque characteristics



Temperature characteristics

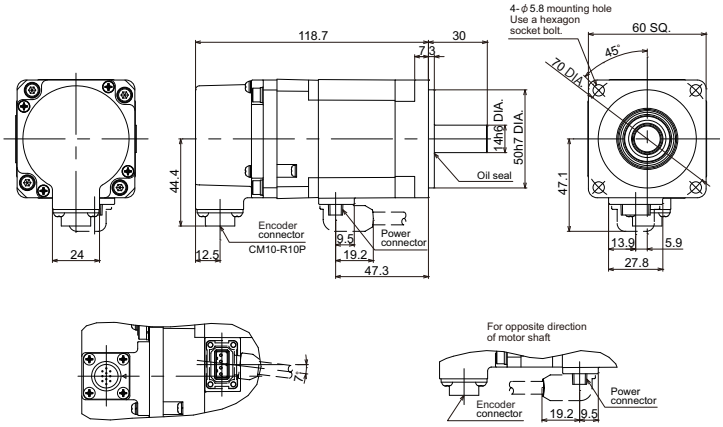


Environmental conditions

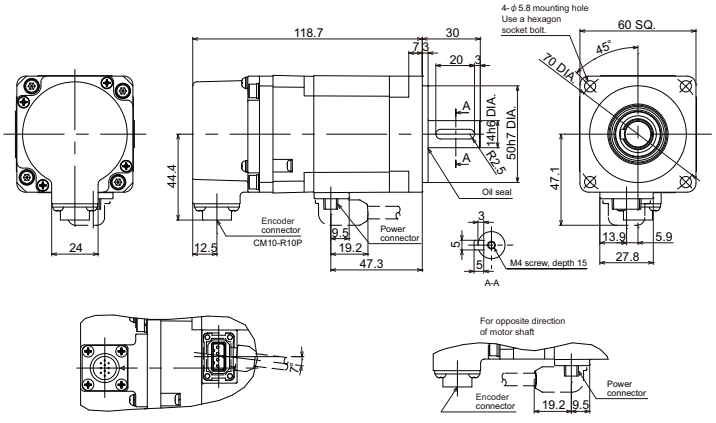
Item	Conditions
Ambient temperature	Operation: 0 to 40°C (with no freezing) Storage: -15°C to +70°C (with no freezing)
Ambient humidity	Operation:80% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Outline dimension drawings [Unit : mm]

HF-KP46JW09



HF-KP46JKW09



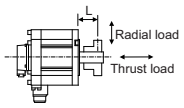
Rated torque	Rated rotation speed	Tool spindle motor type	Option		
0.80N・m	6000r/min	HF-KP56 J ☐ W09 (1)	(1) Keyway	K	With keyway (with key)
				None	Without keyway

Specifications

Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-D-SP-20
	2-axis type	MDS-D-SP2-2020 (L,M) MDS-D-SP2-4020 (M)
	3-axis type	-
	Multi axis integrated type	-
	Regenerative resistor type	MDS-D-SPJ3-075/075NA
Continuous characteristics	Rated output[kW]	0.5
	Rated current[A]	1.8
	Rated torque[N・m]	0.80
Maximum momentary output (For power supply selection)[kW]		2.0
Rated rotation speed[r/min]		6000
Maximum rotation speed[r/min]		6000
Maximum current[A]		11.3
Maximum torque[N・m]		5.0
Motor inertia[$\times 10^{-4}$ kg•m^2]		0.42
Mass[kg]		1.7
Heat-resistant class		130(B)
Degree of protection		IP67 (The shaft-through portion is excluded.)
Quakeproof level[m/s^2] ([G])		X:49(5), Y:49(5)
Axis tolerable load	Radial load (*2)[N] ([mm])	245 (L=30)
	Thrust load[N]	98
Encoder	260,000 p/rev (W09)	MDS-D-SP MDS-D-SP2 MDS-D-SPJ3

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)

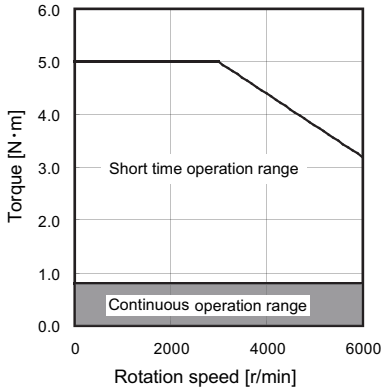


L : Length from flange installation surface to center of load weight [mm]

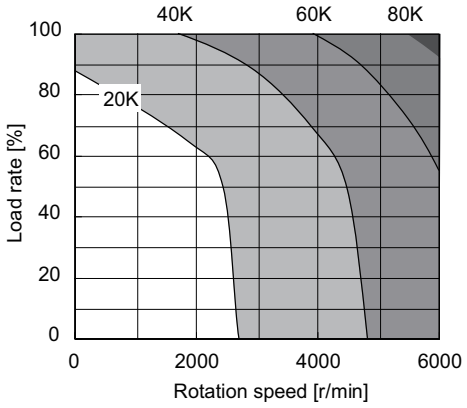
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C (with no freezing) Storage: -15°C to +70°C (with no freezing)
Ambient humidity	Operation:80% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Torque characteristics

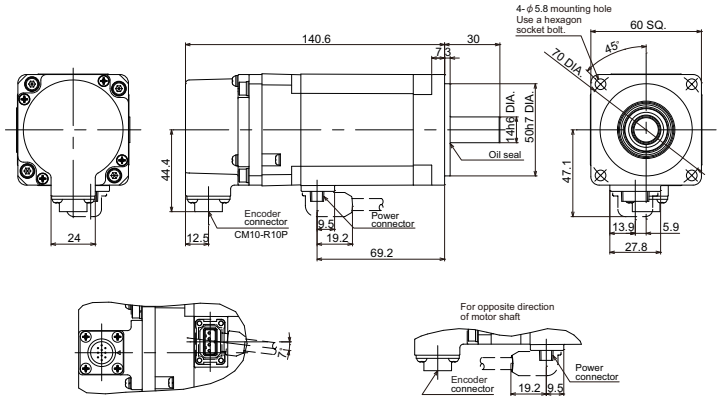


Temperature characteristics

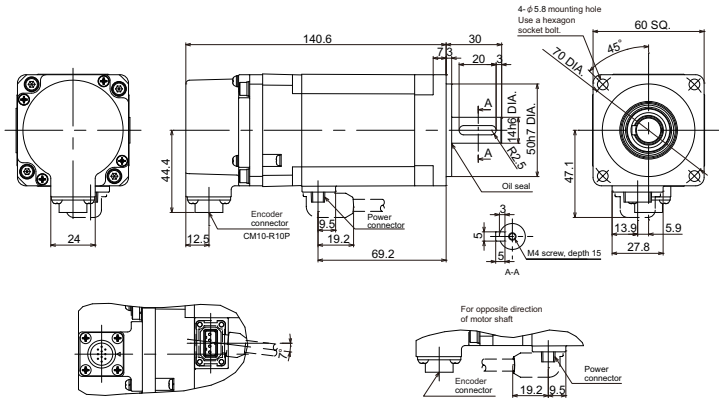


Outline dimension drawings [Unit : mm]

HF-KP56JW09



HF-KP56JKW09



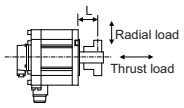
Rated torque	Rated rotation speed	Tool spindle motor type	Option		
1.43N・m	6000r/min	HF-KP96 J ☐ W09 (1)	(1) Keyway	K	With keyway (with key)
				None	Without keyway

Specifications

Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-D-SP-20
	2-axis type	MDS-D-SP2-2020 (L,M) MDS-D-SP2-4020 (M)
	3-axis type	-
	Multi axis integrated type	-
	Regenerative resistor type	MDS-D-SPJ3-075/075NA
Continuous characteristics	Rated output[kW]	0.9
	Rated current[A]	3.4
	Rated torque[N・m]	1.43
Maximum momentary output (For power supply selection)[kW]		3.0
Rated rotation speed[r/min]		6000
Maximum rotation speed[r/min]		6000
Maximum current[A]		15.5
Maximum torque[N・m]		6.5
Motor inertia[$\times 10^{-4}$ kg•m^2]		1.43
Mass[kg]		2.9
Heat-resistant class		130(B)
Degree of protection		IP67 (The shaft-through portion is excluded.)
Quakeproof level[m/s^2] ([G])		X:49(5), Y:49(5)
Axis tolerable load	Radial load (*2)[N] ([mm])	392 (L=40)
	Thrust load[N]	147
Encoder	260,000 p/rev (W09)	MDS-D-SP MDS-D-SP2 MDS-D-SPJ3

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)

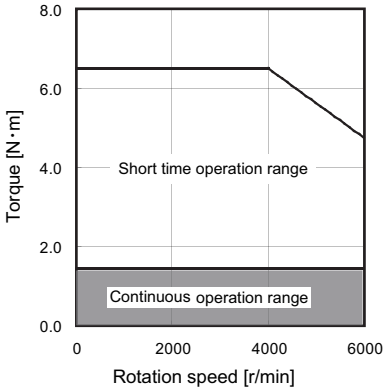


L : Length from flange installation surface to center of load weight [mm]

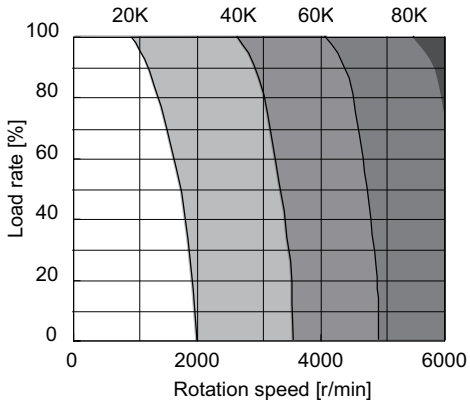
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C (with no freezing) Storage: -15°C to +70°C (with no freezing)
Ambient humidity	Operation:80% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Torque characteristics

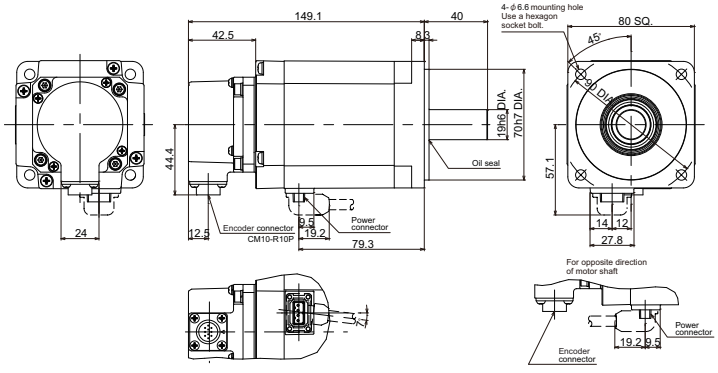


Temperature characteristics

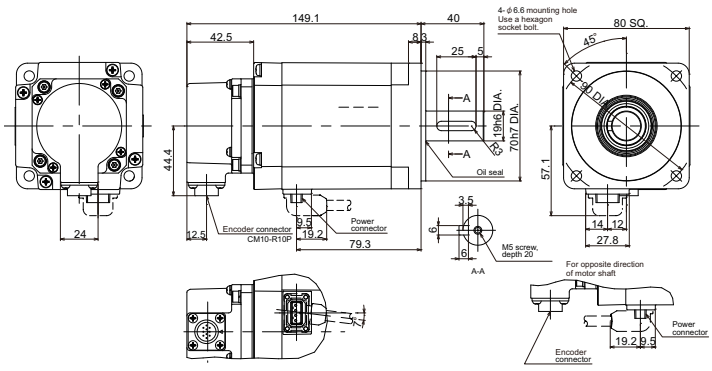


Outline dimension drawings [Unit : mm]

HF-KP96JW09



HF-KP96JKW09



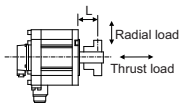
Rated torque	Rated rotation speed	Tool spindle motor type	Option		
		(1)	(1) Keyway	K	With keyway (without key)
3.5N・m	6000r/min	HF-SP226 J □ W09		None	Without keyway

Specifications

Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-D-SP-80
	2-axis type	MDS-D-SP2-8040 (L) MDS-D-SP2-16080S (M) MDS-D-SP2-8080 (L,M) MDS-D-SP2-16080 (M)
	3-axis type	-
	Multi axis integrated type	-
	Regenerative resistor type	-
Continuous characteristics	Rated output[kW]	2.2
	Rated current[A]	8.2
	Rated torque[N・m]	3.5
Maximum momentary output (For power supply selection)[kW]		8.2
Rated rotation speed[r/min]		6000
Maximum rotation speed[r/min]		6000
Maximum current[A]		44.0
Maximum torque[N・m]		22.0
Motor inertia[$\times 10^{-4}$ kg•m^2]		11.9
Mass[kg]		2.9
Heat-resistant class		155(F)
Degree of protection		IP67 (The shaft-through portion is excluded.)
Quakeproof level[m/s^2] ([G])		X:24.5(2.5),Y:24.5(2.5)
Axis tolerable load	Radial load (*2)[N] ([mm])	980 (L=55)
	Thrust load[N]	490
Encoder	260,000 p/rev (W09)	MDS-D-SP MDS-D-SP2

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)

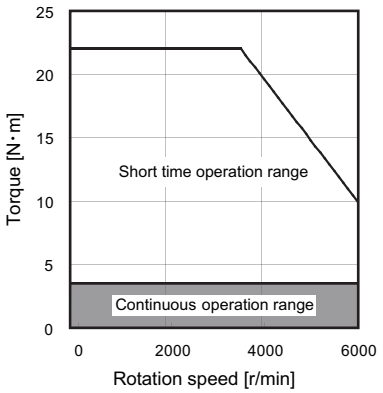


L : Length from flange installation surface to center of load weight [mm]

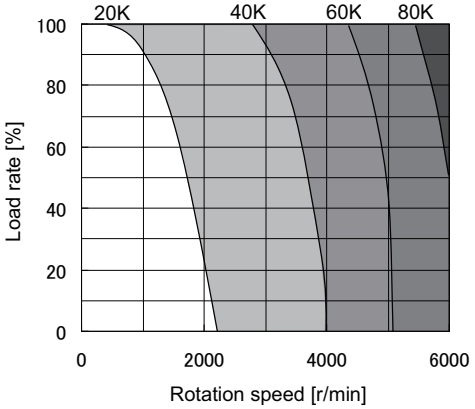
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C (with no freezing) Storage: -15°C to +70°C (with no freezing)
Ambient humidity	Operation:80% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Torque characteristics

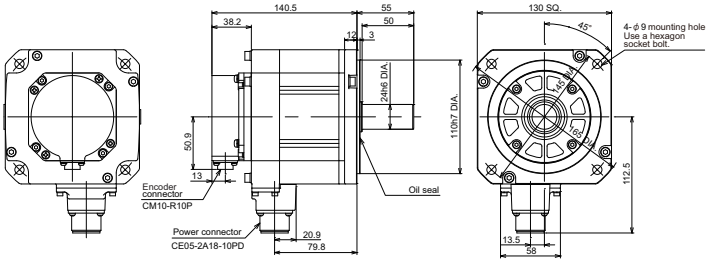


Temperature characteristics

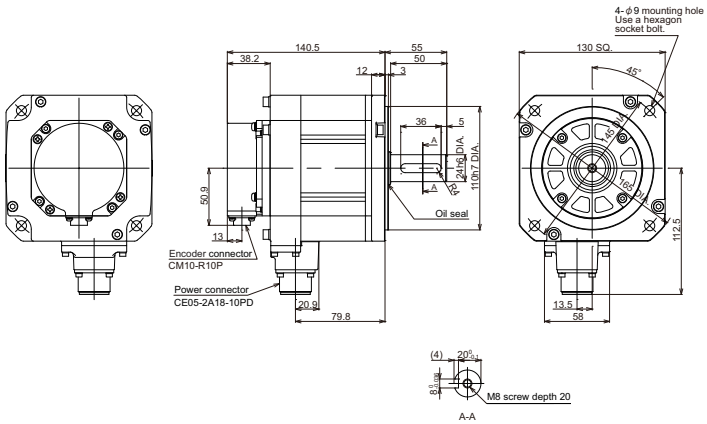


Outline dimension drawings [Unit : mm]

HF-SP226JW09



HF-SP226JKW09



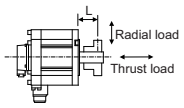
Rated torque	Rated rotation speed	Tool spindle motor type	Option		
6.37N・m	6000r/min	HF-SP406 J ☐ W09 (1)	(1) Keyway	K	With keyway (without key)
				None	Without keyway

Specifications

Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-D-SP-160
	2-axis type	MDS-D-SP2-16080S (L) MDS-D-SP2-16080 (L)
	3-axis type	-
	Multi axis integrated type	-
	Regenerative resistor type	-
Continuous characteristics	Rated output[kW]	4.0
	Rated current[A]	14.4
	Rated torque[N・m]	6.37
Maximum momentary output (For power supply selection)[kW]		16.0
Rated rotation speed[r/min]		6000
Maximum rotation speed[r/min]		6000
Maximum current[A]		95.0
Maximum torque[N・m]		50.0
Motor inertia[$\times 10^{-4}$ kg•m^2]		23.7
Mass[kg]		10.0
Heat-resistant class		155(F)
Degree of protection		IP67 (The shaft-through portion is excluded.)
Quakeproof level[m/s^2] ([G])		X:24.5(2.5),Y:24.5(2.5)
Axis tolerable load	Radial load (*2)[N] ([mm])	980 (L=55)
	Thrust load[N]	490
Encoder	260,000 p/rev (W09)	MDS-D-SP MDS-D-SP2

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)

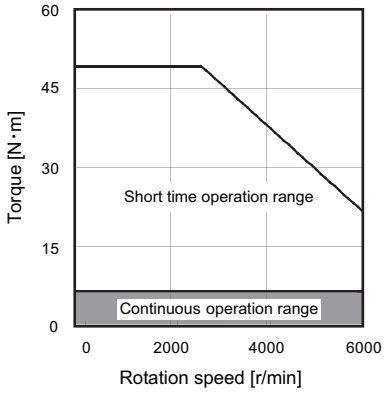


L : Length from flange installation surface to center of load weight [mm]

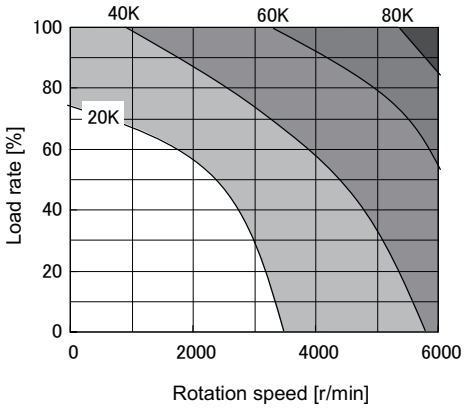
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C (with no freezing) Storage: -15°C to +70°C (with no freezing)
Ambient humidity	Operation:80% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Torque characteristics

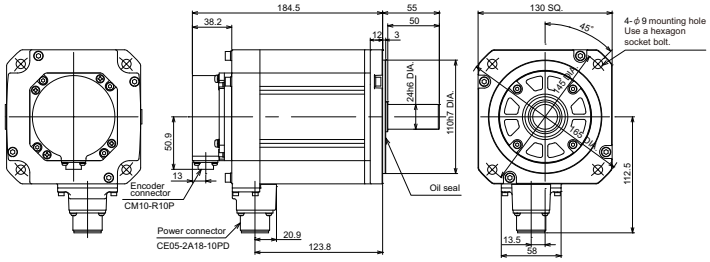


Temperature characteristics

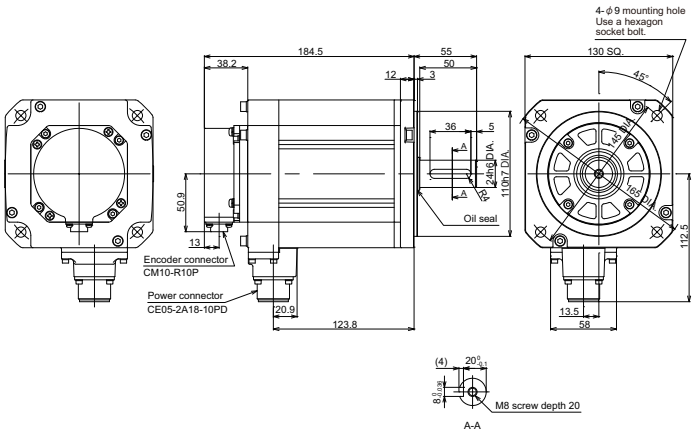


Outline dimension drawings [Unit : mm]

HF-SP406JW09



HF-SP406JKW09

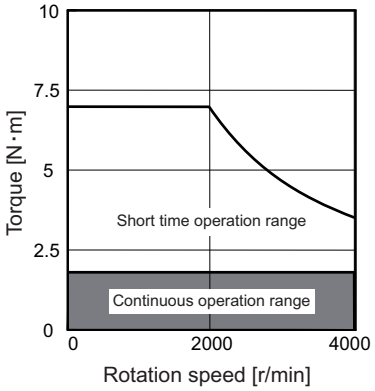


Rated torque	Rated rotation speed	Tool spindle motor type	Option		
		(1)	(1) Shaft end	S	Straight
1.8N・m	4000r/min	HF75 □ -A48			

Specifications

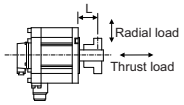
Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-D-SP-20
	2-axis type	MDS-D-SP2-2020 (L,M) MDS-D-SP2-4020 (M)
	3-axis type	-
	Multi axis integrated type	-
	Regenerative resistor type	MDS-D-SPJ3-075/075NA
Continuous characteristics	Rated output[kW]	0.75
	Rated current[A]	3.1
	Rated torque[N・m]	1.8
Maximum momentary output (For power supply selection)[kW]		2.6
Rated rotation speed[r/min]		4000
Maximum rotation speed[r/min]		4000
Maximum current[A]		14.0
Maximum torque[N・m]		7.0
Motor inertia[$\times 10^{-4}$ kg•m^2]		2.6
Mass[kg]		2.5
Heat-resistant class		155(F)
Degree of protection		IP67 (The shaft-through portion is excluded.)
Quakeproof level[m/s^2] ([G])		X:24.5(2.5),Y:24.5(2.5)
Axis tolerable load	Radial load (*2)[N] ([mm])	245 (L=33)
	Thrust load[N]	147
Encoder	260,000 p/rev (A48)	MDS-D-SP MDS-D-SPJ3

Torque characteristics



(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)



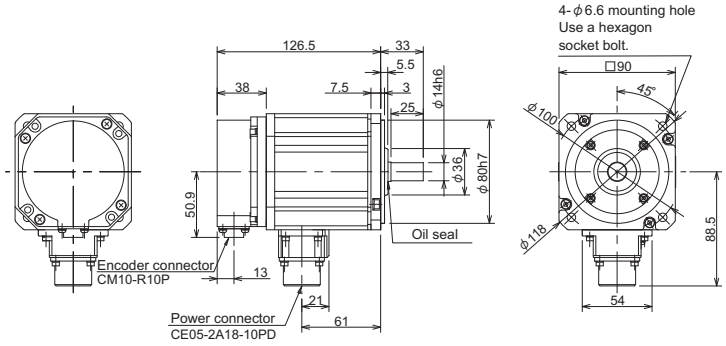
L : Length from flange installation surface to center of load weight [mm]

Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C (with no freezing) Storage: -15°C to +70°C (with no freezing)
Ambient humidity	Operation:80% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Outline dimension drawings [Unit : mm]

HF75S-A48

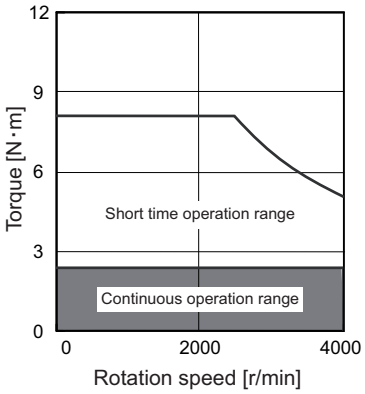


Rated torque	Rated rotation speed	Tool spindle motor type	Option		
			(1) Shaft end	S	Straight
2.4N・m	4000r/min	HF105 ☐ -A48 (1)			

Specifications

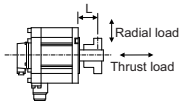
Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-D-SP-20
	2-axis type	MDS-D-SP2-2020 (L,M) MDS-D-SP2-4020 (M)
	3-axis type	-
	Multi axis integrated type	-
	Regenerative resistor type	MDS-D-SPJ3-075/075NA
Continuous characteristics	Rated output[kW]	1.0
	Rated current[A]	3.7
	Rated torque[N・m]	2.4
Maximum momentary output (For power supply selection)[kW]		3.6
Rated rotation speed[r/min]		4000
Maximum rotation speed[r/min]		4000
Maximum current[A]		15.5
Maximum torque[N・m]		8.1
Motor inertia[$\times 10^{-4}$ kg•m^2]		5.1
Mass[kg]		4.3
Heat-resistant class		155(F)
Degree of protection		IP67 (The shaft-through portion is excluded.)
Quakeproof level[m/s^2] ([G])		X:24.5(2.5),Y:24.5(2.5)
Axis tolerable load	Radial load (*2)[N] ([mm])	245 (L=33)
	Thrust load[N]	147
Encoder	260,000 p/rev (A48)	MDS-D-SP MDS-D-SPJ3

Torque characteristics



(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)



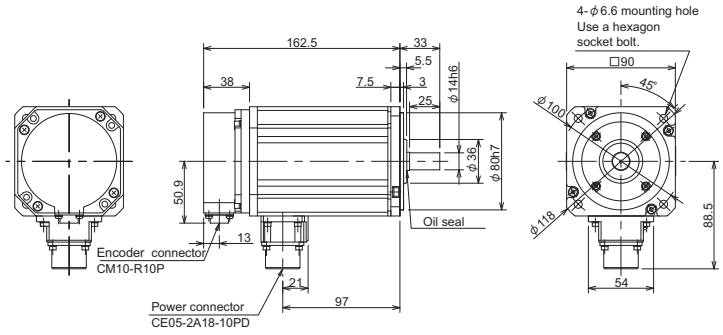
L : Length from flange installation surface to center of load weight [mm]

Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C (with no freezing) Storage: -15°C to +70°C (with no freezing)
Ambient humidity	Operation:80% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Outline dimension drawings [Unit : mm]

HF105S-A48



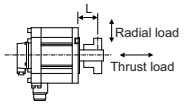
Rated torque	Rated rotation speed	Tool spindle motor type	Option		
			(1) Shaft end	S	Straight
1.6N・m	3000r/min	HF54 ☐ -A48 (1)			

Specifications

Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-D-SP-40
	2-axis type	MDS-D-SP2-4020 (L) MDS-D-SP2-4040S (L,M) MDS-D-SP2-4040 (L,M) MDS-D-SP2-8040 (M)
	3-axis type	-
	Multi axis integrated type	-
	Regenerative resistor type	MDS-D-SPJ3-075/075NA
Continuous characteristics	Rated output[kW]	0.5
	Rated current[A]	2.0
	Rated torque[N・m]	1.6
Maximum momentary output (For power supply selection)[kW]		2.3
Rated rotation speed[r/min]		3000
Maximum rotation speed[r/min]		3000
Maximum current[A]		16.8
Maximum torque[N・m]		12.1
Motor inertia[$\times 10^{-4}$ kg•m^2]		6.1
Mass[kg]		4.8
Heat-resistant class		155(F)
Degree of protection		IP67 (The shaft-through portion is excluded.)
Quakeproof level[m/s^2] ([G])		X:24.5(2.5),Y:24.5(2.5)
Axis tolerable load	Radial load (*2)[N] ([mm])	980 (L=55)
	Thrust load[N]	490
Encoder	260,000 p/rev (A48)	MDS-D-SP MDS-D-SPJ3

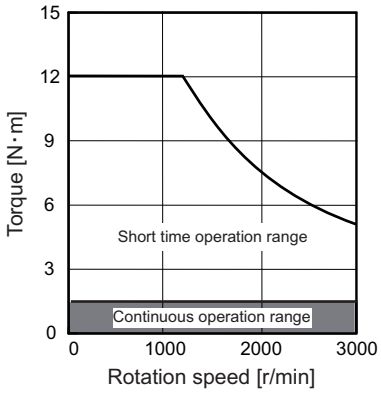
(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)



L : Length from flange installation surface to center of load weight [mm]

Torque characteristics

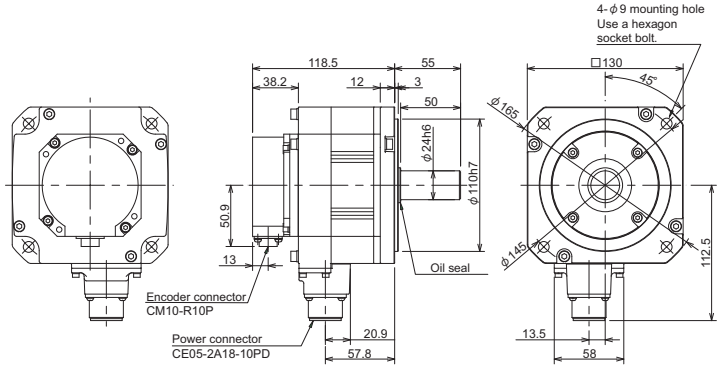


Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C (with no freezing) Storage: -15°C to +70°C (with no freezing)
Ambient humidity	Operation:80% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Outline dimension drawings [Unit : mm]

HF54S-A48



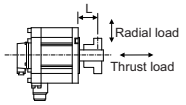
Rated torque	Rated rotation speed	Tool spindle motor type	Option		
		(1)	(1) Shaft end	S	Straight
3.2N・m	3000r/min	HF104 □ -A48			

Specifications

Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-D-SP-40
	2-axis type	MDS-D-SP2-4020 (L) MDS-D-SP2-4040S (L,M) MDS-D-SP2-4040 (L,M) MDS-D-SP2-8040 (M)
	3-axis type	-
	Multi axis integrated type	-
	Regenerative resistor type	MDS-D-SPJ3-22/22NA
Continuous characteristics	Rated output[kW]	1.0
	Rated current[A]	3.9
	Rated torque[N・m]	3.2
Maximum momentary output (For power supply selection)[kW]		5.0
Rated rotation speed[r/min]		3000
Maximum rotation speed[r/min]		3000
Maximum current[A]		29.0
Maximum torque[N・m]		23.3
Motor inertia[$\times 10^{-4}$ kg•m^2]		11.9
Mass[kg]		6.5
Heat-resistant class		155(F)
Degree of protection		IP67 (The shaft-through portion is excluded.)
Quakeproof level[m/s^2] ([G])		X:24.5(2.5),Y:24.5(2.5)
Axis tolerable load	Radial load (*2)[N] ([mm])	980 (L=55)
	Thrust load[N]	490
Encoder	260,000 p/rev (A48)	MDS-D-SP MDS-D-SPJ3

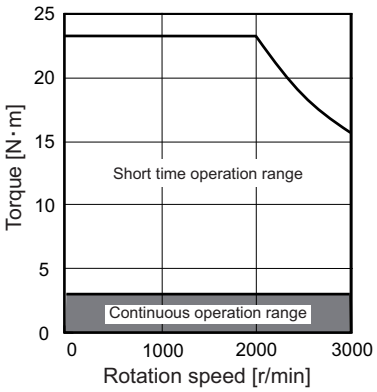
(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)



L : Length from flange installation surface to center of load weight [mm]

Torque characteristics

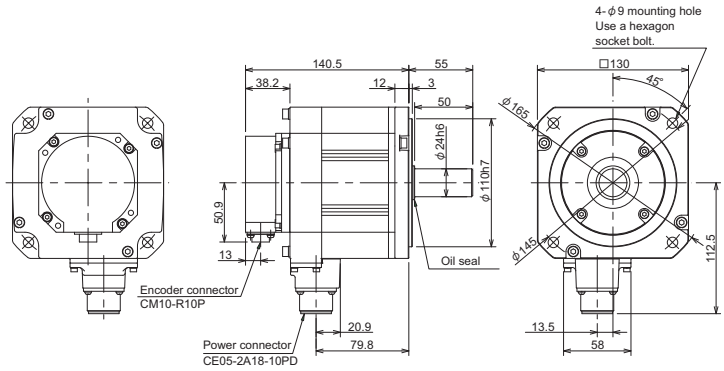


Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C (with no freezing) Storage: -15°C to +70°C (with no freezing)
Ambient humidity	Operation:80% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Outline dimension drawings [Unit : mm]

HF104S-A48



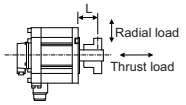
Rated torque	Rated rotation speed	Tool spindle motor type	Option		
			(1) Shaft end	S	Straight
4.8N・m	3000r/min	HF154 □ -A48 (1)			

Specifications

Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-D-SP-80
	2-axis type	MDS-D-SP2-8040 (L) MDS-D-SP2-16080S (M) MDS-D-SP2-8080 (L,M) MDS-D-SP2-16080 (M)
	3-axis type	-
	Multi axis integrated type	-
	Regenerative resistor type	MDS-D-SPJ3-37/37NA
Continuous characteristics	Rated output[kW]	1.5
	Rated current[A]	5.6
	Rated torque[N・m]	4.8
Maximum momentary output (For power supply selection)[kW]		9.0
Rated rotation speed[r/min]		3000
Maximum rotation speed[r/min]		3000
Maximum current[A]		52.0
Maximum torque[N・m]		33.9
Motor inertia[$\times 10^{-4}$ kg•m^2]		17.8
Mass[kg]		8.3
Heat-resistant class		155(F)
Degree of protection		IP67 (The shaft-through portion is excluded.)
Quakeproof level[m/s^2] ([G])		X:24.5(2.5),Y:24.5(2.5)
Axis tolerable load	Radial load (*2)[N] ([mm])	980 (L=55)
	Thrust load[N]	490
Encoder	260,000 p/rev (A48)	MDS-D-SP MDS-D-SPJ3

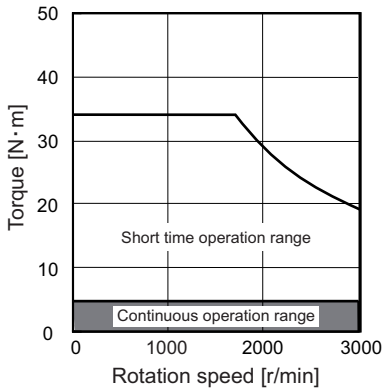
(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)



L : Length from flange installation surface to center of load weight [mm]

Torque characteristics

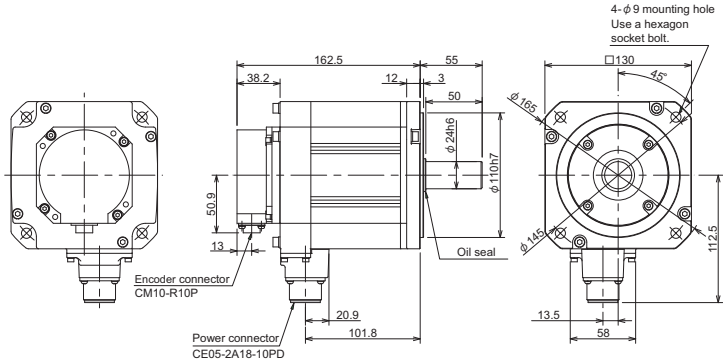


Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C (with no freezing) Storage: -15°C to +70°C (with no freezing)
Ambient humidity	Operation:80% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Outline dimension drawings [Unit : mm]

HF154S-A48



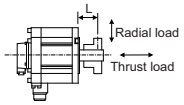
Rated torque	Rated rotation speed	Tool spindle motor type	Option		
			(1) Shaft end	S	Straight
12.0N・m	3000r/min	HF224 ☐ -A48 (1)			

Specifications

Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-D-SP-80
	2-axis type	MDS-D-SP2-8040 (L) MDS-D-SP2-16080S (M) MDS-D-SP2-8080 (L,M) MDS-D-SP2-16080 (M)
	3-axis type	-
	Multi axis integrated type	-
	Regenerative resistor type	MDS-D-SPJ3-37/37NA
Continuous characteristics	Rated output[kW]	2.2
	Rated current[A]	8.6
	Rated torque[N・m]	7.0
Maximum momentary output (For power supply selection)[kW]		12.3
Rated rotation speed[r/min]		3000
Maximum rotation speed[r/min]		3000
Maximum current[A]		57.0
Maximum torque[N・m]		46.5
Motor inertia[$\times 10^{-4}$ kg•m^2]		23.7
Mass[kg]		10.0
Heat-resistant class		155(F)
Degree of protection		IP67 (The shaft-through portion is excluded.)
Quakeproof level[m/s^2] ([G])		X:24.5(2.5),Y:24.5(2.5)
Axis tolerable load	Radial load (*2)[N] ([mm])	980 (L=55)
	Thrust load[N]	490
Encoder	260,000 p/rev (A48)	MDS-D-SP MDS-D-SPJ3

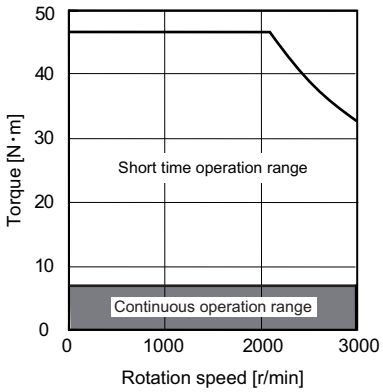
(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)



L : Length from flange installation surface to center of load weight [mm]

Torque characteristics

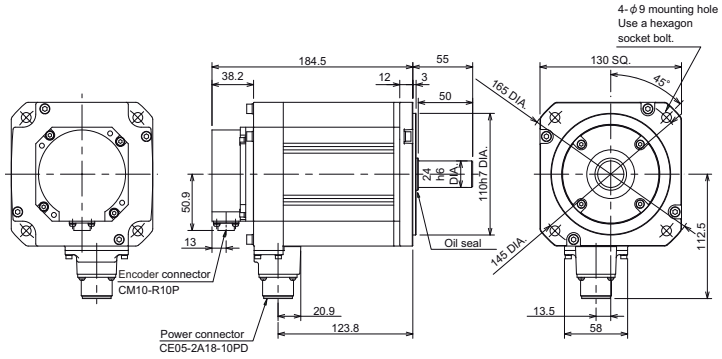


Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C (with no freezing) Storage: -15°C to +70°C (with no freezing)
Ambient humidity	Operation:80% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Outline dimension drawings [Unit : mm]

HF224S-A48



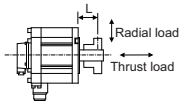
Rated torque	Rated rotation speed	Tool spindle motor type	Option		
			(1) Shaft end	S	Straight
6.4N・m	3000r/min	HF204 ☐ -A48 (1)			

Specifications

Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-D-SP-80
	2-axis type	MDS-D-SP2-8040 (L) MDS-D-SP2-16080S (M) MDS-D-SP2-8080 (L,M) MDS-D-SP2-16080 (M)
	3-axis type	-
	Multi axis integrated type	-
	Regenerative resistor type	MDS-D-SPJ3-37/37NA
Continuous characteristics	Rated output[kW]	2.0
	Rated current[A]	6.8
	Rated torque[N・m]	6.4
Maximum momentary output (For power supply selection)[kW]		8.0
Rated rotation speed[r/min]		3000
Maximum rotation speed[r/min]		3000
Maximum current[A]		57.0
Maximum torque[N・m]		46.5
Motor inertia[$\times 10^{-4}$ kg•m^2]		38.3
Mass[kg]		12.0
Heat-resistant class		155(F)
Degree of protection		IP67 (The shaft-through portion is excluded.)
Quakeproof level[m/s^2] ([G])		X:24.5(2.5),Y:24.5(2.5)
Axis tolerable load	Radial load (*2)[N] ([mm])	2058 (L=79)
	Thrust load[N]	980
Encoder	260,000 p/rev (A48)	MDS-D-SP MDS-D-SPJ3

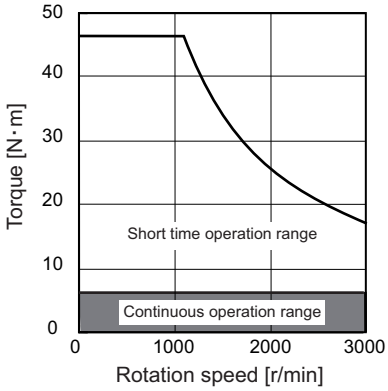
(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)



L : Length from flange installation surface to center of load weight [mm]

Torque characteristics

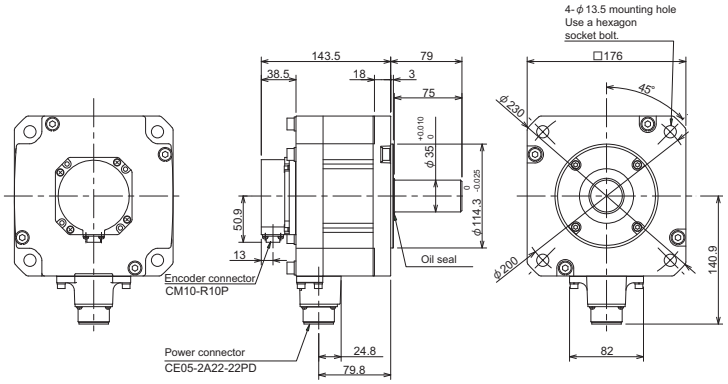


Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C (with no freezing) Storage: -15°C to +70°C (with no freezing)
Ambient humidity	Operation:80% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Outline dimension drawings [Unit : mm]

HF204S-A48

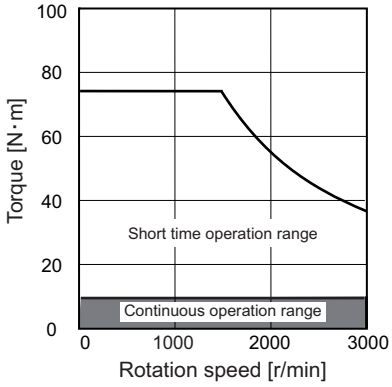


Rated torque	Rated rotation speed	Tool spindle motor type	Option		
		(1)	(1) Shaft end	S	Straight
11.1N・m	3000r/min	HF354 □ -A48			

Specifications

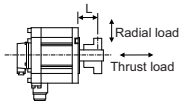
Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-D-SP-160
	2-axis type	MDS-D-SP2-16080S (L) MDS-D-SP2-16080 (L)
	3-axis type	-
	Multi axis integrated type	-
	Regenerative resistor type	-
Continuous characteristics	Rated output[kW]	3.5
	Rated current[A]	12
	Rated torque[N・m]	11.1
Maximum momentary output (For power supply selection)[kW]		18.0
Rated rotation speed[r/min]		3000
Maximum rotation speed[r/min]		3000
Maximum current[A]		116.0
Maximum torque[N・m]		74.5
Motor inertia[$\times 10^{-4}$ kg•m^2]		75.0
Mass[kg]		19.0
Heat-resistant class		155(F)
Degree of protection		IP67 (The shaft-through portion is excluded.)
Quakeproof level[m/s^2] ([G])		X:24.5(2.5),Y:24.5(2.5)
Axis tolerable load	Radial load (*2)[N] ([mm])	2058 (L=79)
	Thrust load[N]	980
Encoder	260,000 p/rev (A48)	MDS-D-SP

Torque characteristics



(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)



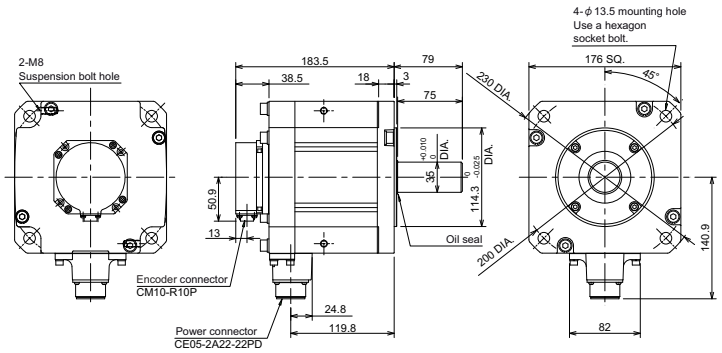
L : Length from flange installation surface to center of load weight [mm]

Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C (with no freezing) Storage: -15°C to +70°C (with no freezing)
Ambient humidity	Operation:80% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Outline dimension drawings [Unit : mm]

HF354S-A48



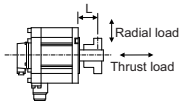
Rated torque	Rated rotation speed	Tool spindle motor type	Option		
			(1) Shaft end	S	Straight
5.7N・m	2000r/min	HF123 ☐ -A48 (1)			

Specifications

Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-D-SP-20
	2-axis type	MDS-D-SP2-2020 (L,M) MDS-D-SP2-4020 (M)
	3-axis type	-
	Multi axis integrated type	-
	Regenerative resistor type	MDS-D-SPJ3-075/075NA
Continuous characteristics	Rated output[kW]	1.2
	Rated current[A]	5.2
	Rated torque[N・m]	5.7
Maximum momentary output (For power supply selection)[kW]		4.0
Rated rotation speed[r/min]		2000
Maximum rotation speed[r/min]		2000
Maximum current[A]		15.5
Maximum torque[N・m]		17.0
Motor inertia[$\times 10^{-4}$ kg•m^2]		11.9
Mass[kg]		6.5
Heat-resistant class		155(F)
Degree of protection		IP67 (The shaft-through portion is excluded.)
Quakeproof level[m/s^2] ([G])		X:24.5(2.5),Y:24.5(2.5)
Axis tolerable load	Radial load (*2)[N] ([mm])	980 (L=55)
	Thrust load[N]	490
Encoder	260,000 p/rev (A48)	MDS-D-SP MDS-D-SPJ3

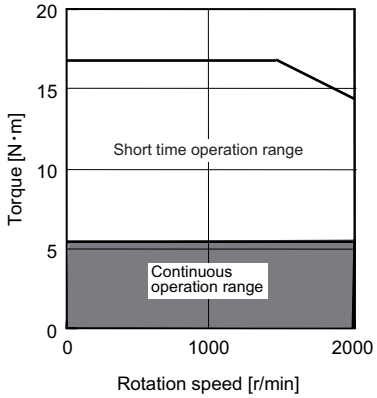
(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)



L : Length from flange installation surface to center of load weight [mm]

Torque characteristics

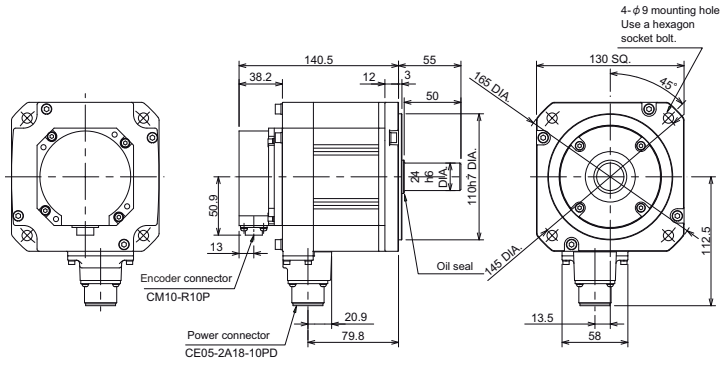


Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C (with no freezing) Storage: -15°C to +70°C (with no freezing)
Ambient humidity	Operation:80% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Outline dimension drawings [Unit : mm]

HF123S-A48



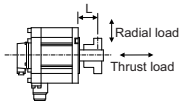
Rated torque	Rated rotation speed	Tool spindle motor type	Option		
		(1)	(1) Shaft end	S	Straight
10.5N・m	2000r/min	HF223 □ -A48			

Specifications

Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-D-SP-40
	2-axis type	MDS-D-SP2-4020 (L) MDS-D-SP2-4040S (L,M) MDS-D-SP2-4040 (L,M) MDS-D-SP2-8040 (M)
	3-axis type	-
	Multi axis integrated type	-
	Regenerative resistor type	MDS-D-SPJ3-22/22NA
Continuous characteristics	Rated output[kW]	2.2
	Rated current[A]	9.0
	Rated torque[N・m]	10.5
Maximum momentary output (For power supply selection)[kW]		7.5
Rated rotation speed[r/min]		2000
Maximum rotation speed[r/min]		2000
Maximum current[A]		29.0
Maximum torque[N・m]		32.0
Motor inertia[$\times 10^{-4}$ kg•m^2]		23.7
Mass[kg]		10.0
Heat-resistant class		155(F)
Degree of protection		IP67 (The shaft-through portion is excluded.)
Quakeproof level[m/s^2] ([G])		X:24.5(2.5),Y:24.5(2.5)
Axis tolerable load	Radial load (*2)[N] ([mm])	980 (L=55)
	Thrust load[N]	490
Encoder	260,000 p/rev (A48)	MDS-D-SP MDS-D-SPJ3

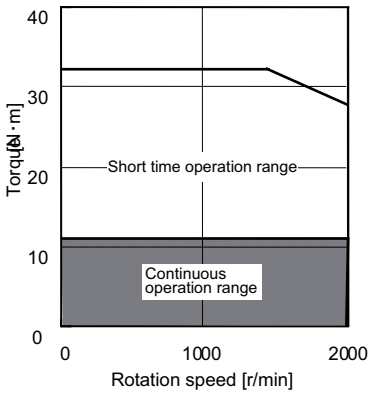
(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)



L : Length from flange installation surface to center of load weight [mm]

Torque characteristics

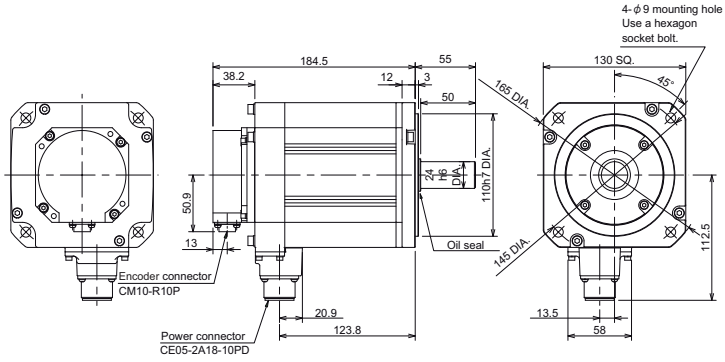


Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C (with no freezing) Storage: -15°C to +70°C (with no freezing)
Ambient humidity	Operation:80% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Outline dimension drawings [Unit : mm]

HF223S-A48



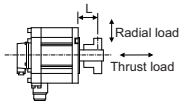
Rated torque	Rated rotation speed	Tool spindle motor type	Option		
			(1) Shaft end	S	Straight
14.3N・m	2000r/min	HF303 ☐ -A48 (1)			

Specifications

Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-D-SP-80
	2-axis type	MDS-D-SP2-8040 (L) MDS-D-SP2-16080S (M) MDS-D-SP2-8080 (L,M) MDS-D-SP2-16080 (M)
	3-axis type	-
	Multi axis integrated type	-
	Regenerative resistor type	MDS-D-SPJ3-37/37NA
Continuous characteristics	Rated output[kW]	3.0
	Rated current[A]	11
	Rated torque[N・m]	14.3
Maximum momentary output (For power supply selection)[kW]		12.0
Rated rotation speed[r/min]		2000
Maximum rotation speed[r/min]		2000
Maximum current[A]		48.0
Maximum torque[N・m]		64.0
Motor inertia[$\times 10^{-4}$ kg•m^2]		75.0
Mass[kg]		19.0
Heat-resistant class		155(F)
Degree of protection		IP67 (The shaft-through portion is excluded.)
Quakeproof level[m/s^2] ([G])		X:24.5(2.5),Y:24.5(2.5)
Axis tolerable load	Radial load (*2)[N] ([mm])	2058 (L=79)
	Thrust load[N]	980
Encoder	260,000 p/rev (A48)	MDS-D-SP MDS-D-SPJ3

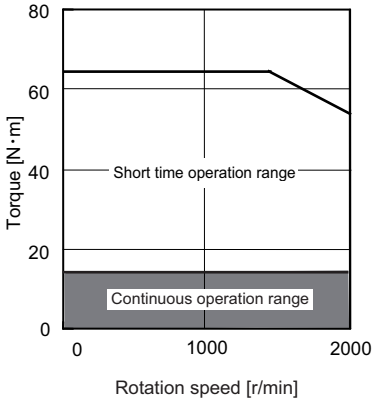
(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)



L : Length from flange installation surface to center of load weight [mm]

Torque characteristics

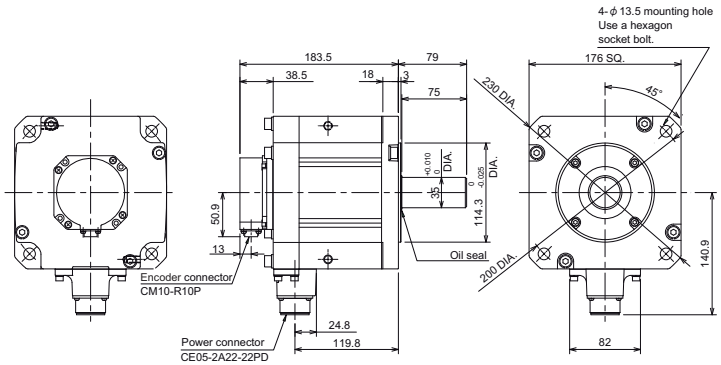


Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C (with no freezing) Storage: -15°C to +70°C (with no freezing)
Ambient humidity	Operation:80% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Outline dimension drawings [Unit : mm]

HF303S-A48

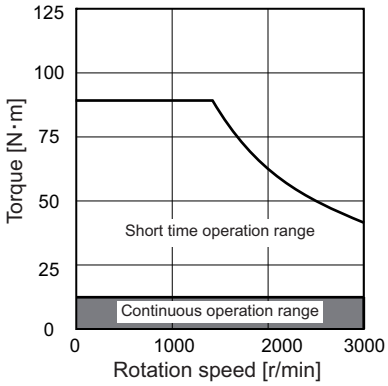


Rated torque	Rated rotation speed	Tool spindle motor type	Option		
		(1)	(1) Shaft end	S	Straight
14.3N・m	3000r/min	HF453 □ -A48			

Specifications

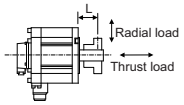
Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-D-SP-160
	2-axis type	MDS-D-SP2-16080S (L) MDS-D-SP2-16080 (L)
	3-axis type	-
	Multi axis integrated type	-
	Regenerative resistor type	-
Continuous characteristics	Rated output[kW]	4.5
	Rated current[A]	19
	Rated torque[N・m]	14.3
Maximum momentary output (For power supply selection)[kW]		22.0
Rated rotation speed[r/min]		3000
Maximum rotation speed[r/min]		3000
Maximum current[A]		104.2
Maximum torque[N・m]		89.3
Motor inertia[$\times 10^{-4}$ kg•m^2]		112.0
Mass[kg]		25.0
Heat-resistant class		155(F)
Degree of protection		IP67 (The shaft-through portion is excluded.)
Quakeproof level[m/s^2] ([G])		X:24.5(2.5),Y:24.5(2.5)
Axis tolerable load	Radial load (*2)[N] ([mm])	2058 (L=79)
	Thrust load[N]	980
Encoder	260,000 p/rev (A48)	MDS-D-SP

Torque characteristics



(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)



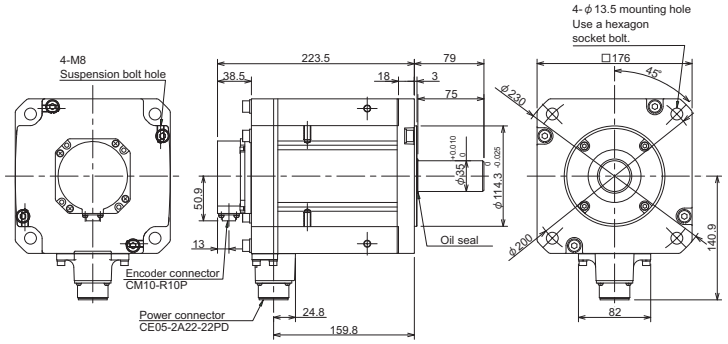
L : Length from flange installation surface to center of load weight [mm]

Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C (with no freezing) Storage: -15°C to +70°C (with no freezing)
Ambient humidity	Operation:80% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Outline dimension drawings [Unit : mm]

HF453S-A48

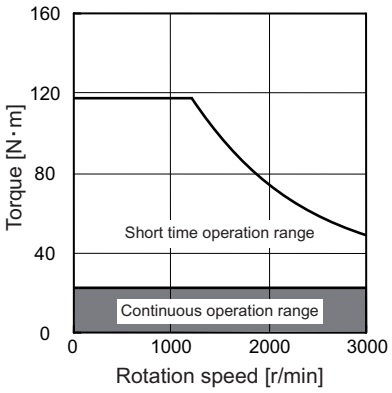


Rated torque	Rated rotation speed	Tool spindle motor type	Option		
		(1)	(1) Shaft end	S	Straight
22.3N・m	3000r/min	HF703 □ -A48			

Specifications

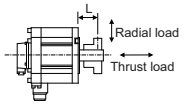
Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-D-SP-160
	2-axis type	MDS-D-SP2-16080S (L) MDS-D-SP2-16080 (L)
	3-axis type	-
	Multi axis integrated type	-
	Regenerative resistor type	-
Continuous characteristics	Rated output[kW]	7.0
	Rated current[A]	34
	Rated torque[N・m]	22.3
Maximum momentary output (For power supply selection)[kW]		28.0
Rated rotation speed[r/min]		3000
Maximum rotation speed[r/min]		3000
Maximum current[A]		108.4
Maximum torque[N・m]		116.5
Motor inertia[$\times 10^{-4}$ kg•m^2]		154.0
Mass[kg]		32.0
Heat-resistant class		155(F)
Degree of protection		IP67 (The shaft-through portion is excluded.)
Quakeproof level[m/s^2] ([G])		X:24.5(2.5),Y:24.5(2.5)
Axis tolerable load	Radial load (*2)[N] ([mm])	2058 (L=79)
	Thrust load[N]	980
Encoder	260,000 p/rev (A48)	MDS-D-SP

Torque characteristics



(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)



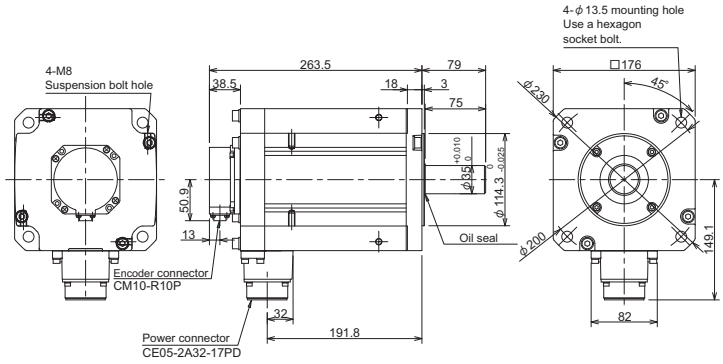
L : Length from flange installation surface to center of load weight [mm]

Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C (with no freezing) Storage: -15°C to +70°C (with no freezing)
Ambient humidity	Operation:80% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Outline dimension drawings [Unit : mm]

HF703S-A48

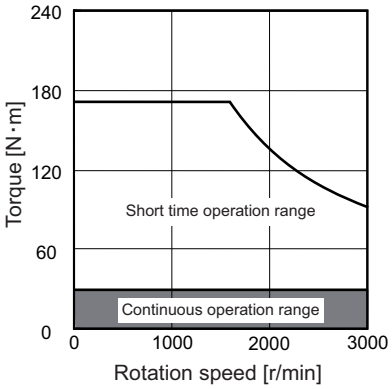


Rated torque	Rated rotation speed	Tool spindle motor type	Option		
			(1) Shaft end	S	Straight
28.7N・m	3000r/min	HF903 ☐ -A48 (1)			

Specifications

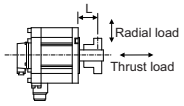
Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-D-SP-320
	2-axis type	-
	3-axis type	-
	Multi axis integrated type	-
	Regenerative resistor type	-
Continuous characteristics	Rated output[kW]	9.0
	Rated current[A]	30
	Rated torque[N・m]	28.7
Maximum momentary output (For power supply selection)[kW]		41.0
Rated rotation speed[r/min]		3000
Maximum rotation speed[r/min]		3000
Maximum current[A]		204.0
Maximum torque[N・m]		171.0
Motor inertia[$\times 10^{-4}$ kg•m^2]		196.0
Mass[kg]		43.0
Heat-resistant class		155(F)
Degree of protection		IP67 (The shaft-through portion is excluded.)
Quakeproof level[m/s^2] ([G])		X:9.8(1), Y:9.8(1)
Axis tolerable load	Radial load (*2)[N] ([mm])	2450 (L=85)
	Thrust load[N]	980
Encoder	260,000 p/rev (A48)	MDS-D-SP

Torque characteristics



(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)



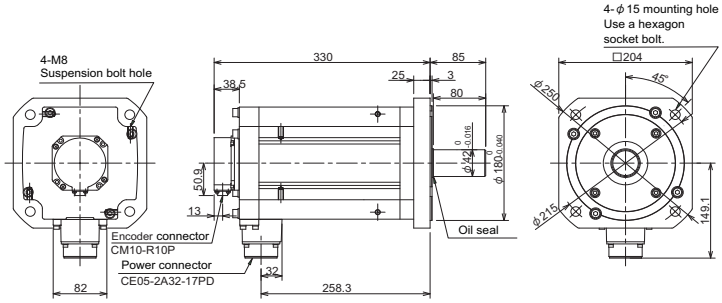
L : Length from flange installation surface to center of load weight [mm]

Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C (with no freezing) Storage: -15°C to +70°C (with no freezing)
Ambient humidity	Operation:80% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Outline dimension drawings [Unit : mm]

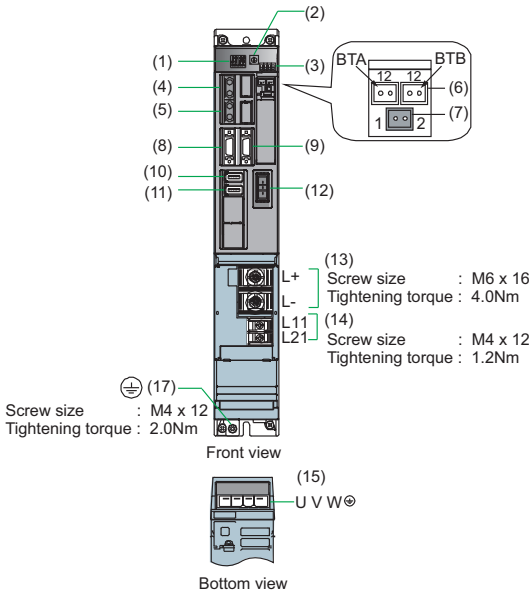
HF903S-A48



Servo drive unit

Servo drive unit

MDS-D-V1-20



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SWL	Axis No. setting switch
(3)	SW1	Unused axis setting switch
(4)	CN1A	NC or master axis optical communication connector
(5)	CN1B	Slave axis optical communication connector
(6)	BTA BTB	For connecting converged battery unit
(7)	BT1	For connecting battery built-in drive unit ER6V-C119B
(8)	CN9	(Unused)
(9)	CN4	Power supply communication connector
(10)	CN2L	Motor side encoder connection connector 5V power supply capacity: 0.35A
(11)	CN3L	Machine side encoder connection connector 5V power supply capacity: 0.35A
(12)	CN20	Motor brake/dynamic brake control connector
(13)	TE2	Main circuit power supply input terminal (DC input)
(14)	TE3	Control power input terminal (single-phase AC input)
(15)	TE1	Motor power supply output connector (3-phase AC output)
(17)	PE	Grounding terminal Note that TE1 connector is used for the motor grounding.

Specifications

Item		Specifications
Nominal maximum current(peak)[A]		20
Output	Rated voltage[V]	155AC
	Rated current[A]	6.4
Input	Rated voltage[V]	270 to 311DC
	Rated current[A]	7.0
Control power	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±3% max
	Voltage(50Hz)[V]	200AC
	Voltage(60Hz)[V]	200 to 230AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Max. current[A]	0.2
	Max. rush current[A]	30
	Max. rush conductivity time[ms]	6
Max. earth leakage current[mA]		2
Braking		Regenerative braking and dynamic brakes
	Dynamic brakes	Built-in
Heating value	Inside panel[W]	18
	Outside panel[W]	22
Cooling method		Forced air cooling
Mass[kg]		3.8

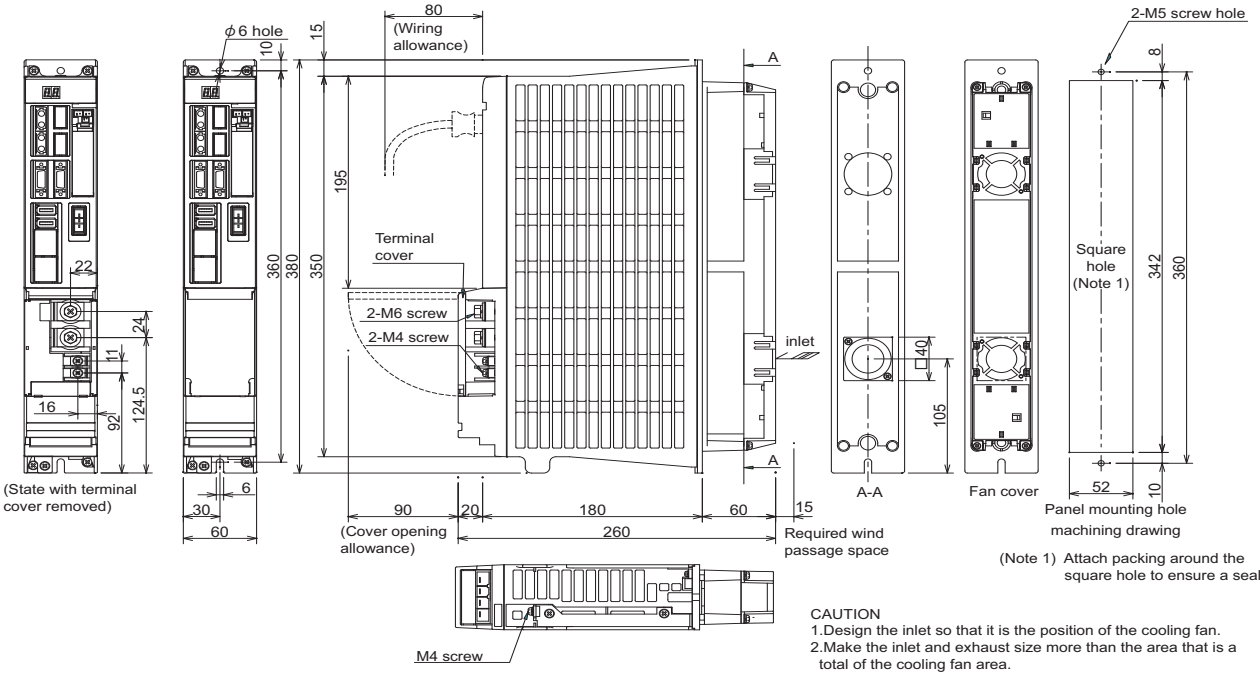
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	$4.9m/s^2$ (0.5G) / $49m/s^2$ (5G)

Recommended wire

	Terminal name					
	TE1 (U, V, W, earth)		TE2 (L+, L-)		TE3 (L11, L21, L12, L22, MC1)	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	2	14	Match with TE2 of selected power supply unit		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	2	14			2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	2	14			1.25 to 2	16 to 14

Outline dimension drawings [Unit : mm]

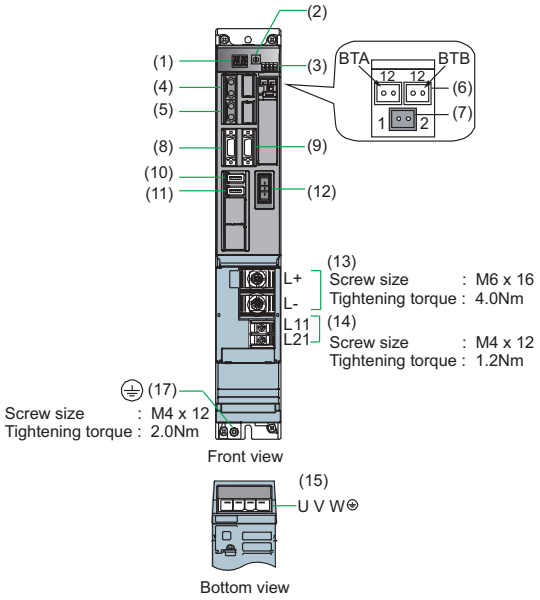


(Note 1) Attach packing around the square hole to ensure a seal.

CAUTION
1.Design the inlet so that it is the position of the cooling fan.
2.Make the inlet and exhaust size more than the area that is a total of the cooling fan area.

Servo drive unit

MDS-D-V1-40



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SWL	Axis No. setting switch
(3)	SW1	Unused axis setting switch
(4)	CN1A	NC or master axis optical communication connector
(5)	CN1B	Slave axis optical communication connector
(6)	BTA BTB	For connecting converged battery unit
(7)	BT1	For connecting battery built-in drive unit ER6V-C119B
(8)	CN9	(Unused)
(9)	CN4	Power supply communication connector
(10)	CN2L	Motor side encoder connection connector 5V power supply capacity: 0.35A
(11)	CN3L	Machine side encoder connection connector 5V power supply capacity: 0.35A
(12)	CN20	Motor brake/dynamic brake control connector
(13)	TE2	Main circuit power supply input terminal (DC input)
(14)	TE3	Control power input terminal (single-phase AC input)
(15)	TE1	Motor power supply output connector (3-phase AC output)
(17)	PE	Grounding terminal Note that TE1 connector is used for the motor grounding.

Specifications

Item		Specifications
Nominal maximum current(peak)[A]		40
Output	Rated voltage[V]	155AC
	Rated current[A]	11
Input	Rated voltage[V]	270 to 311DC
	Rated current[A]	7.0
Control power	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±3% max
	Voltage(50Hz)[V]	200AC
	Voltage(60Hz)[V]	200 to 230AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Max. current[A]	0.2
	Max. rush current[A]	30
	Max. rush conductivity time[ms]	6
Max. earth leakage current[mA]		2
Braking		Regenerative braking and dynamic brakes
	Dynamic brakes	Built-in
Heating value	Inside panel[W]	20
	Outside panel[W]	38
Cooling method		Forced air cooling
Mass[kg]		3.8

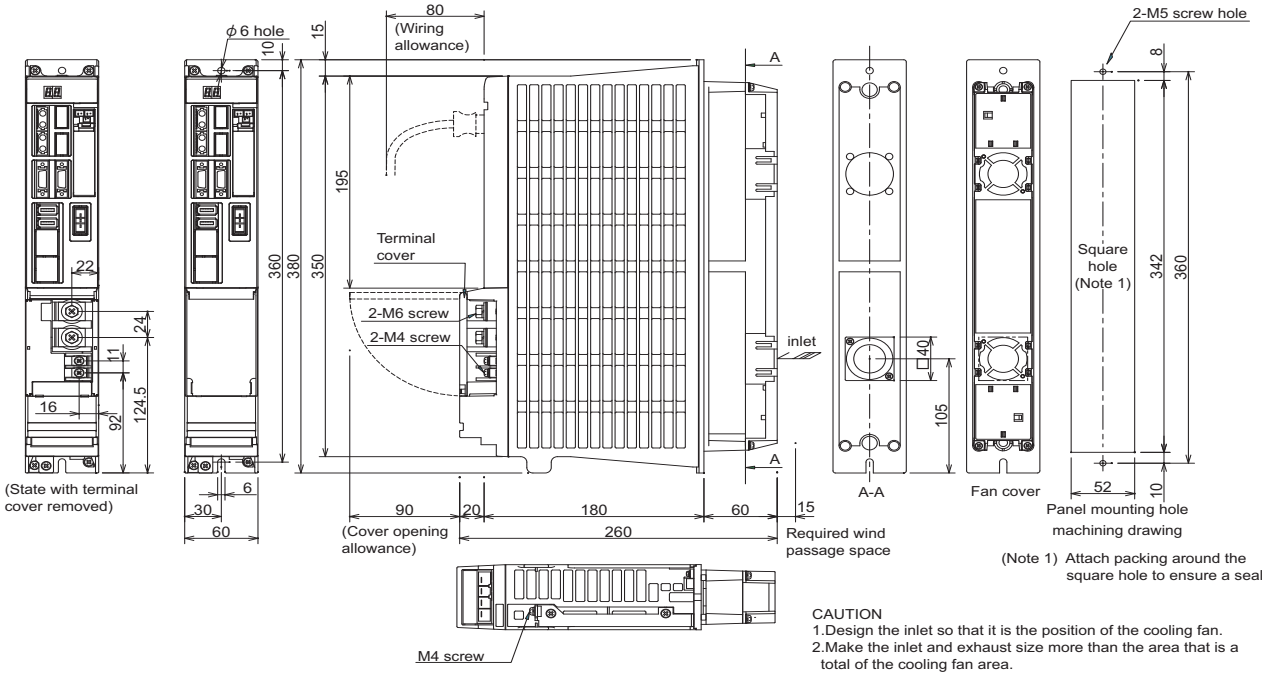
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	$4.9m/s^2$ (0.5G) / $49m/s^2$ (5G)

Recommended wire

	Terminal name					
	TE1 (U, V, W, earth)		TE2 (L+, L-)		TE3 (L11, L21, L12, L22, MC1)	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	2	14	Match with TE2 of selected power supply unit		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	2	14			2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	2	14			1.25 to 2	16 to 14

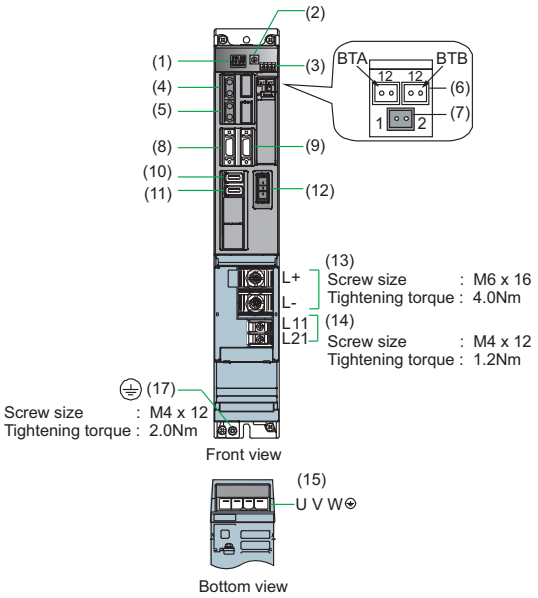
Outline dimension drawings [Unit : mm]



CAUTION
1.Design the inlet so that it is the position of the cooling fan.
2.Make the inlet and exhaust size more than the area that is a total of the cooling fan area.

Servo drive unit

MDS-D-V1-80



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SWL	Axis No. setting switch
(3)	SW1	Unused axis setting switch
(4)	CN1A	NC or master axis optical communication connector
(5)	CN1B	Slave axis optical communication connector
(6)	BTA BTB	For connecting converged battery unit
(7)	BT1	For connecting battery built-in drive unit ER6V-C119B
(8)	CN9	(Unused)
(9)	CN4	Power supply communication connector
(10)	CN2L	Motor side encoder connection connector 5V power supply capacity: 0.35A
(11)	CN3L	Machine side encoder connection connector 5V power supply capacity: 0.35A
(12)	CN20	Motor brake/dynamic brake control connector
(13)	TE2	Main circuit power supply input terminal (DC input)
(14)	TE3	Control power input terminal (single-phase AC input)
(15)	TE1	Motor power supply output connector (3-phase AC output)
(17)	PE	Grounding terminal Note that TE1 connector is used for the motor grounding.

Specifications

Item		Specifications
Nominal maximum current(peak)[A]		80
Output	Rated voltage[V]	155AC
	Rated current[A]	16
Input	Rated voltage[V]	270 to 311DC
	Rated current[A]	14
Control power	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±3% max
	Voltage(50Hz)[V]	200AC
	Voltage(60Hz)[V]	200 to 230AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Max. current[A]	0.2
	Max. rush current[A]	30
	Max. rush conductivity time[ms]	6
Max. earth leakage current[mA]		2
Braking		Regenerative braking and dynamic brakes
	Dynamic brakes	Built-in
Heating value	Inside panel[W]	25
	Outside panel[W]	71
Cooling method		Forced air cooling
Mass[kg]		3.8

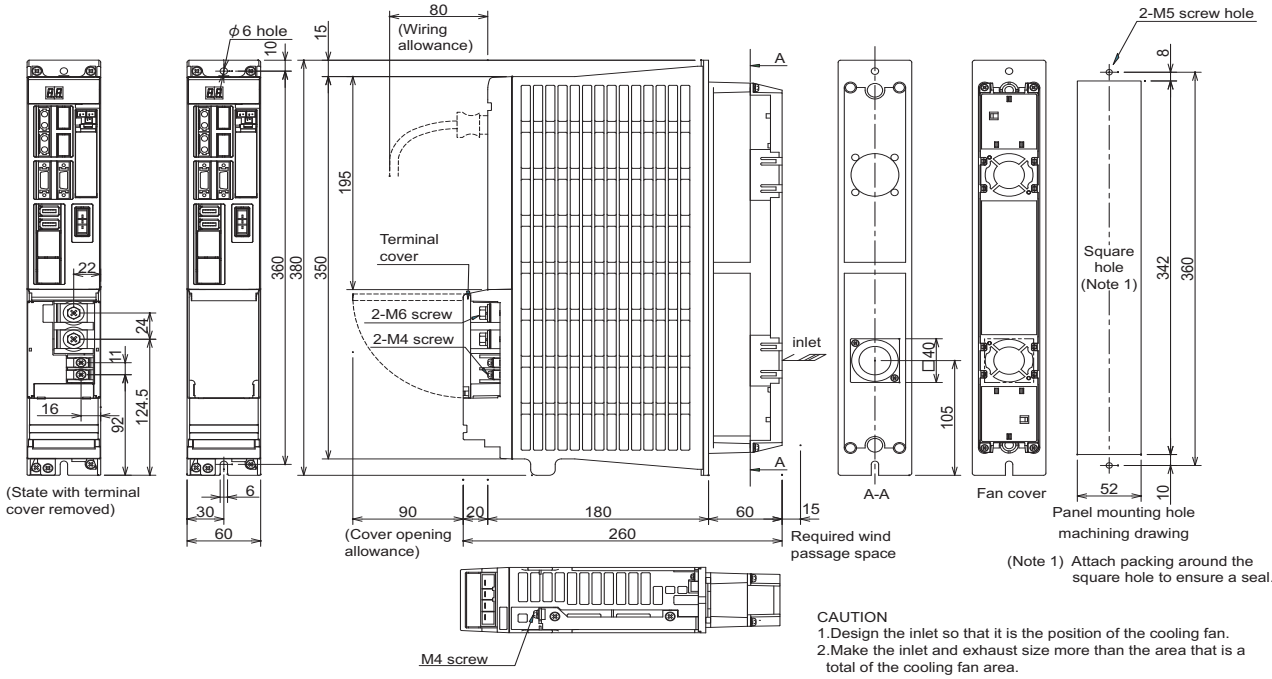
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s^2 (0.5G) / 49m/s^2 (5G)

Recommended wire

	Terminal name					
	TE1 (U, V, W, earth)		TE2 (L+, L-)		TE3 (L11, L21, L12, L22, MC1)	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	3.5	12	Match with TE2 of selected power supply unit		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	3.5	12			2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	2	14			1.25 to 2	16 to 14

Outline dimension drawings [Unit : mm]

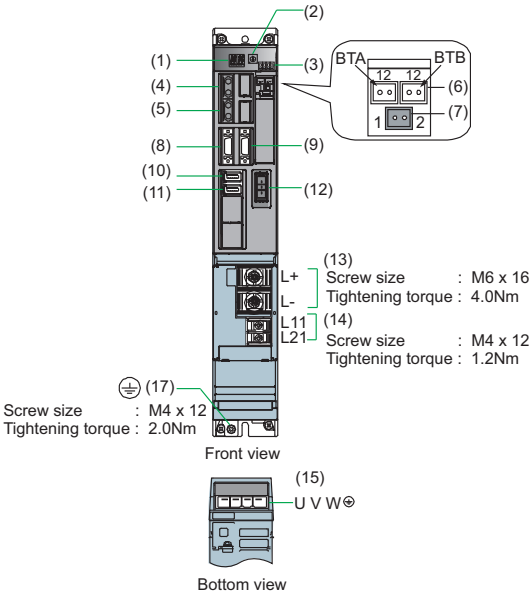


(Note 1) Attach packing around the square hole to ensure a seal.

CAUTION
1.Design the inlet so that it is the position of the cooling fan.
2.Make the inlet and exhaust size more than the area that is a total of the cooling fan area.

Servo drive unit

MDS-D-V1-160



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SWL	Axis No. setting switch
(3)	SW1	Unused axis setting switch
(4)	CN1A	NC or master axis optical communication connector
(5)	CN1B	Slave axis optical communication connector
(6)	BTA BTB	For connecting converged battery unit
(7)	BT1	For connecting battery built-in drive unit ER6V-C119B
(8)	CN9	(Unused)
(9)	CN4	Power supply communication connector
(10)	CN2L	Motor side encoder connection connector 5V power supply capacity: 0.35A
(11)	CN3L	Machine side encoder connection connector 5V power supply capacity: 0.35A
(12)	CN20	Motor brake/dynamic brake control connector
(13)	TE2	Main circuit power supply input terminal (DC input)
(14)	TE3	Control power input terminal (single-phase AC input)
(15)	TE1	Motor power supply output connector (3-phase AC output)
(17)	PE	Grounding terminal Note that TE1 connector is used for the motor grounding.

Specifications

Item		Specifications
Nominal maximum current(peak)[A]		160
Output	Rated voltage[V]	155AC
	Rated current[A]	29.6
Input	Rated voltage[V]	270 to 311DC
	Rated current[A]	30
Control power	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±3% max
	Voltage(50Hz)[V]	200AC
	Voltage(60Hz)[V]	200 to 230AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Max. current[A]	0.2
	Max. rush current[A]	30
	Max. rush conductivity time[ms]	6
Max. earth leakage current[mA]		2
Braking		Regenerative braking and dynamic brakes
	Dynamic brakes	Built-in
Heating value	Inside panel[W]	36
	Outside panel[W]	148
Cooling method		Forced air cooling
Mass[kg]		3.8

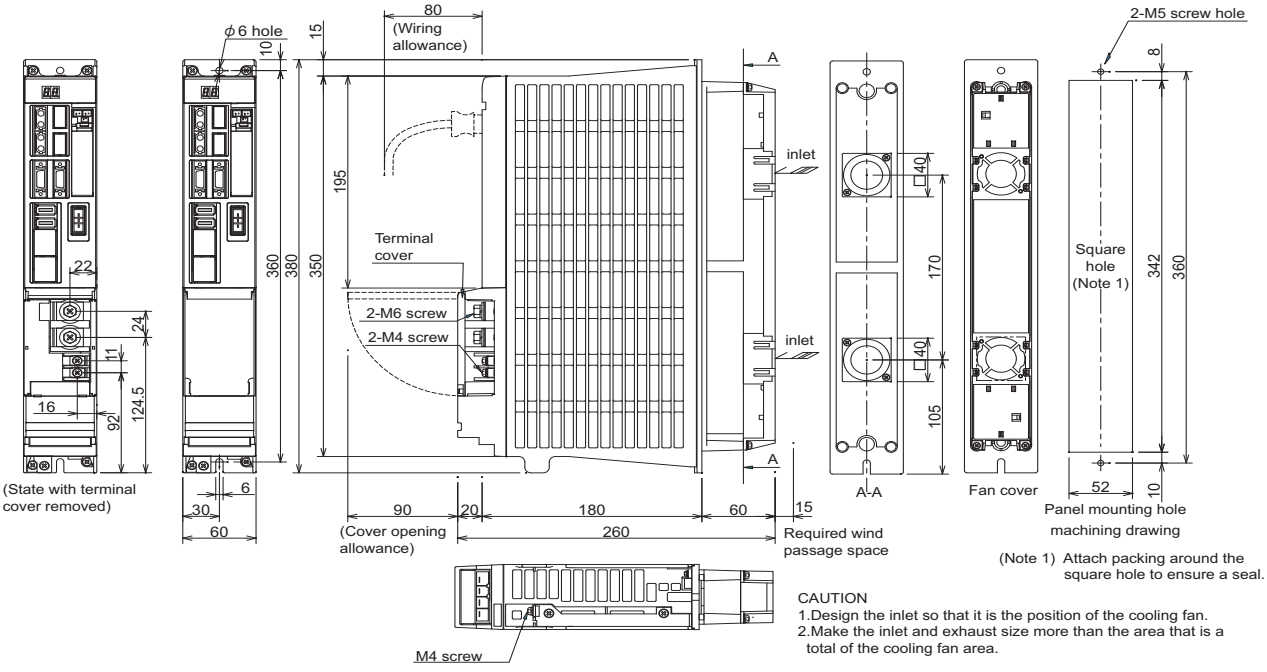
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	$4.9m/s^2$ (0.5G) / $49m/s^2$ (5G)

Recommended wire

	Terminal name					
	TE1 (U, V, W, earth)		TE2 (L+, L-)		TE3 (L11, L21, L12, L22, MC1)	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	5.5	10	Match with TE2 of selected power supply unit		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	5.5	10			2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	3.5	12			1.25 to 2	16 to 14

Outline dimension drawings [Unit : mm]

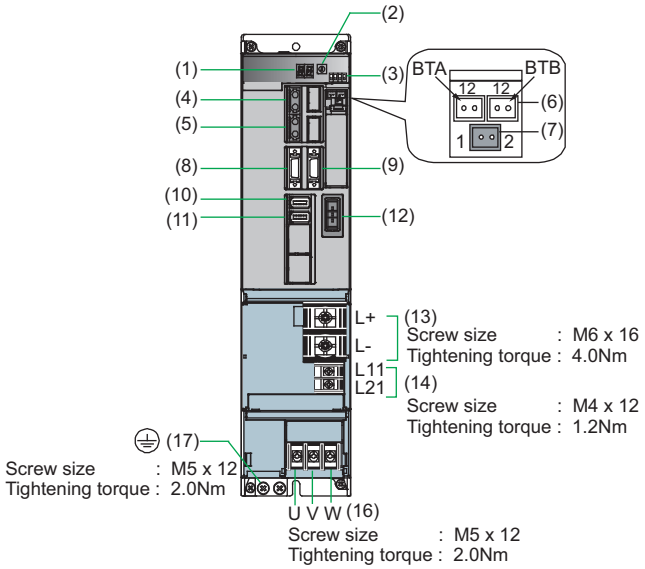


(Note 1) Attach packing around the square hole to ensure a seal.

CAUTION
1.Design the inlet so that it is the position of the cooling fan.
2.Make the inlet and exhaust size more than the area that is a total of the cooling fan area.

Servo drive unit

MDS-D-V1-160W



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SWL	Axis No. setting switch
(3)	SW1	Unused axis setting switch
(4)	CN1A	NC or master axis optical communication connector
(5)	CN1B	Slave axis optical communication connector
(6)	BTA BTB	For connecting converged battery unit
(7)	BT1	For connecting battery built-in drive unit ER6V-C119B
(8)	CN9	(Unused)
(9)	CN4	Power supply communication connector
(10)	CN2L	Motor side encoder connection connector 5V power supply capacity: 0.35A
(11)	CN3L	Machine side encoder connection connector 5V power supply capacity: 0.35A
(12)	CN20	Motor brake/dynamic brake control connector
(13)	TE2	Main circuit power supply input terminal (DC input)
(14)	TE3	Control power input terminal (single-phase AC input)
(16)	TE1	Motor power supply output terminal (3-phase AC output)
(17)	PE	Grounding terminal

Specifications

Item		Specifications
Nominal maximum current(peak)[A]		160
Output	Rated voltage[V]	155AC
	Rated current[A]	40.2
Input	Rated voltage[V]	270 to 311DC
	Rated current[A]	35
Control power	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±3% max
	Voltage(50Hz)[V]	200AC
	Voltage(60Hz)[V]	200 to 230AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Max. current[A]	0.2
	Max. rush current[A]	30
	Max. rush conductivity time[ms]	6
Max. earth leakage current[mA]		2
Braking		Regenerative braking and dynamic brakes
	Dynamic brakes	Built-in
Heating value	Inside panel[W]	44
	Outside panel[W]	201
Cooling method		Forced air cooling
Mass[kg]		4.5

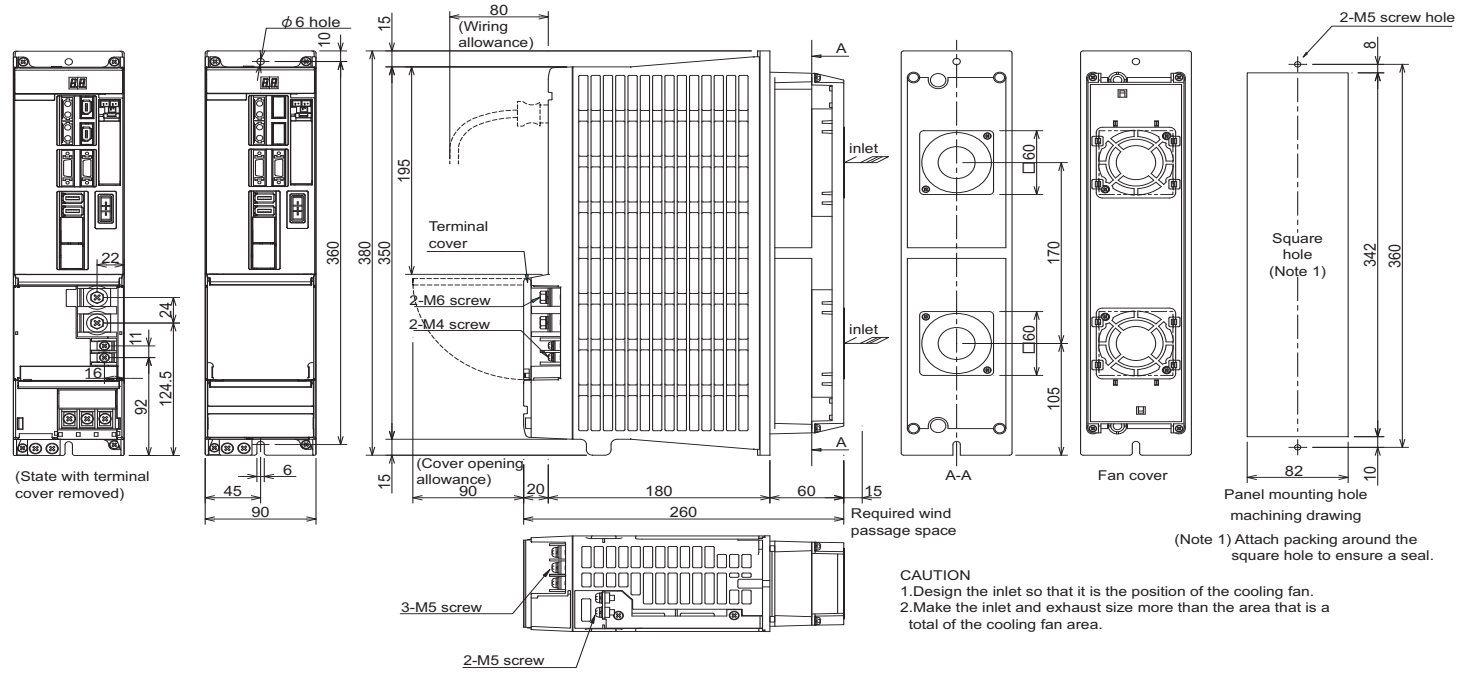
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s^2 (0.5G) / 49m/s^2 (5G)

Recommended wire

	Terminal name					
	TE1 (U, V, W, earth)		TE2 (L+, L-)		TE3 (L11, L21, L12, L22, MC1)	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	14	6	Match with TE2 of selected power supply unit		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	8	8			2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	5.5	10			1.25 to 2	16 to 14

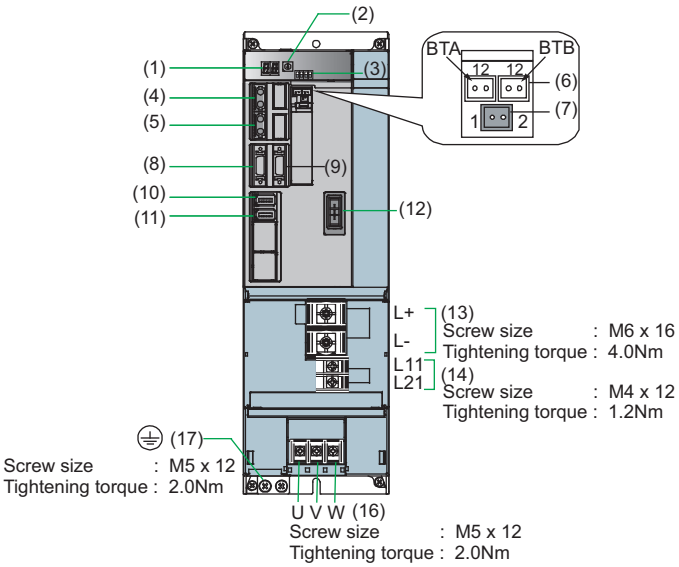
Outline dimension drawings [Unit : mm]



CAUTION
1.Design the inlet so that it is the position of the cooling fan.
2.Make the inlet and exhaust size more than the area that is a total of the cooling fan area.

Servo drive unit

MDS-D-V1-320



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SWL	Axis No. setting switch
(3)	SW1	Unused axis setting switch
(4)	CN1A	NC or master axis optical communication connector
(5)	CN1B	Slave axis optical communication connector
(6)	BTA BTB	For connecting converged battery unit
(7)	BT1	For connecting battery built-in drive unit ER6V-C119B
(8)	CN9	(Unused)
(9)	CN4	Power supply communication connector
(10)	CN2L	Motor side encoder connection connector 5V power supply capacity: 0.35A
(11)	CN3L	Machine side encoder connection connector 5V power supply capacity: 0.35A
(12)	CN20	Motor brake/dynamic brake control connector
(13)	TE2	Main circuit power supply input terminal (DC input)
(14)	TE3	Control power input terminal (single-phase AC input)
(16)	TE1	Motor power supply output terminal (3-phase AC output)
(17)	PE	Grounding terminal

Specifications

Item		Specifications
Nominal maximum current(peak)[A]		320
Output	Rated voltage[V]	155AC
	Rated current[A]	59.6
Input	Rated voltage[V]	270 to 311DC
	Rated current[A]	45
Control power	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±3% max
	Voltage(50Hz)[V]	200AC
	Voltage(60Hz)[V]	200 to 230AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Max. current[A]	0.2
	Max. rush current[A]	30
	Max. rush conductivity time[ms]	6
Max. earth leakage current[mA]		2
Braking		Regenerative braking and dynamic brakes
	Dynamic brakes	Built-in
Heating value	Inside panel[W]	59
	Outside panel[W]	307
Cooling method		Forced air cooling
Mass[kg]		5.8

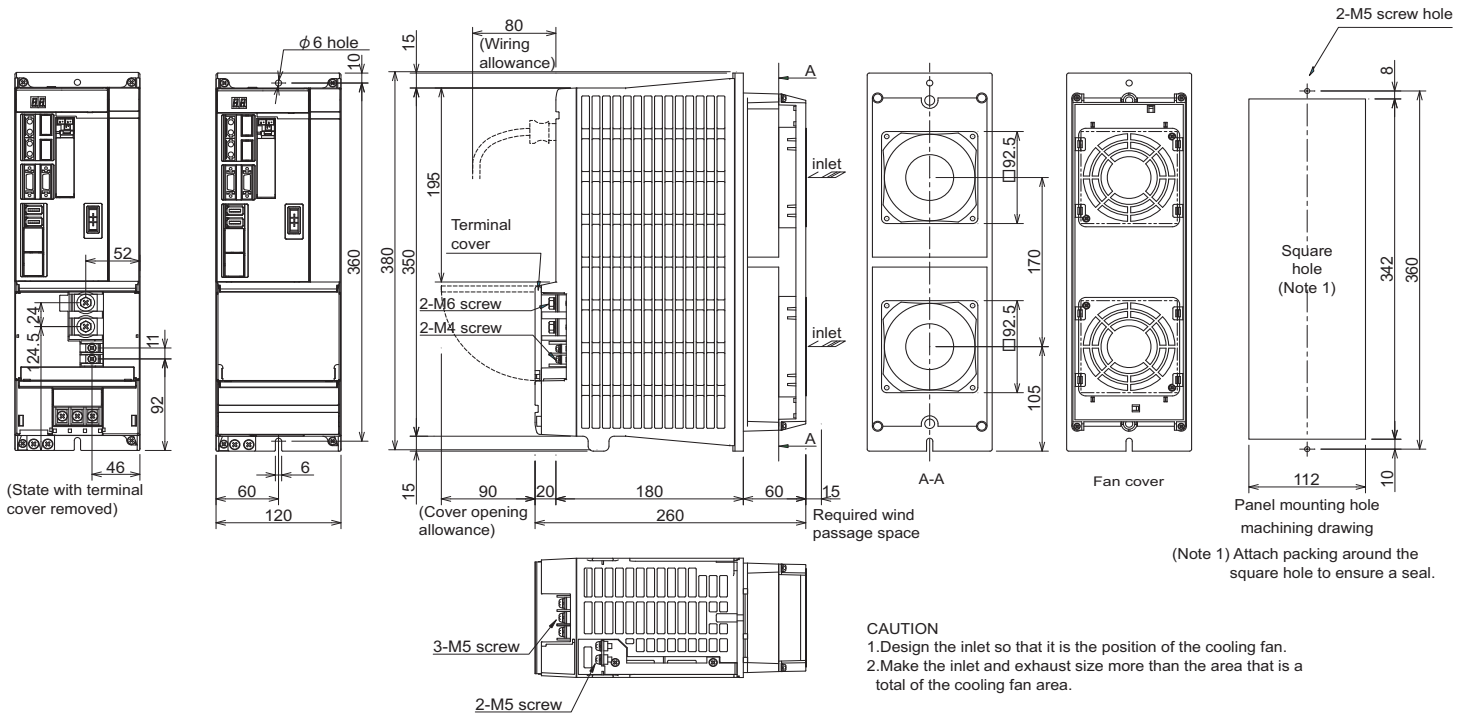
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s^2 (0.5G) / 49m/s^2 (5G)

Recommended wire

	Terminal name					
	TE1 (U, V, W, earth)		TE2 (L+, L-)		TE3 (L11, L21, L12, L22, MC1)	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	22	4	Match with TE2 of selected power supply unit		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	14	6			2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	14	6			1.25 to 2	16 to 14

Outline dimension drawings [Unit : mm]

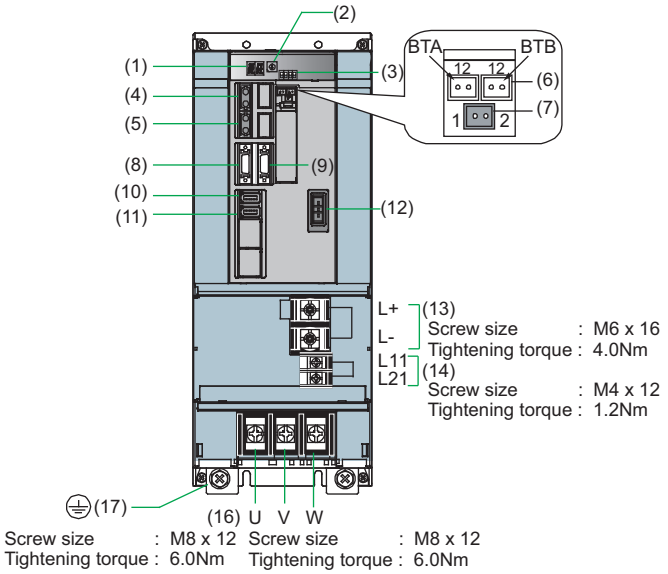


(Note 1) Attach packing around the square hole to ensure a seal.

CAUTION
1.Design the inlet so that it is the position of the cooling fan.
2.Make the inlet and exhaust size more than the area that is a total of the cooling fan area.

Servo drive unit

MDS-D-V1-320W



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SWL	Axis No. setting switch
(3)	SW1	Unused axis setting switch
(4)	CN1A	NC or master axis optical communication connector
(5)	CN1B	Slave axis optical communication connector
(6)	BTA BTB	For connecting converged battery unit
(7)	BT1	For connecting battery built-in drive unit ER6V-C119B
(8)	CN9	(Unused)
(9)	CN4	Power supply communication connector
(10)	CN2L	Motor side encoder connection connector 5V power supply capacity: 0.35A
(11)	CN3L	Machine side encoder connection connector 5V power supply capacity: 0.35A
(12)	CN20	Motor brake/dynamic brake control connector
(13)	TE2	Main circuit power supply input terminal (DC input)
(14)	TE3	Control power input terminal (single-phase AC input)
(16)	TE1	Motor power supply output terminal (3-phase AC output)
(17)	PE	Grounding terminal

Specifications

Item		Specifications
Nominal maximum current(peak)[A]		320
Output	Rated voltage[V]	155AC
	Rated current[A]	97
Input	Rated voltage[V]	270 to 311DC
	Rated current[A]	55
Control power	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±3% max
	Voltage(50Hz)[V]	200AC
	Voltage(60Hz)[V]	200 to 230AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Max. current[A]	0.2
	Max. rush current[A]	30
	Max. rush conductivity time[ms]	6
Max. earth leakage current[mA]		2
Braking		Regenerative braking and dynamic brakes
	Dynamic brakes	External (MDS-D-DBU)
Heating value	Inside panel[W]	72
	Outside panel[W]	399
Cooling method		Forced air cooling
Mass[kg]		7.5

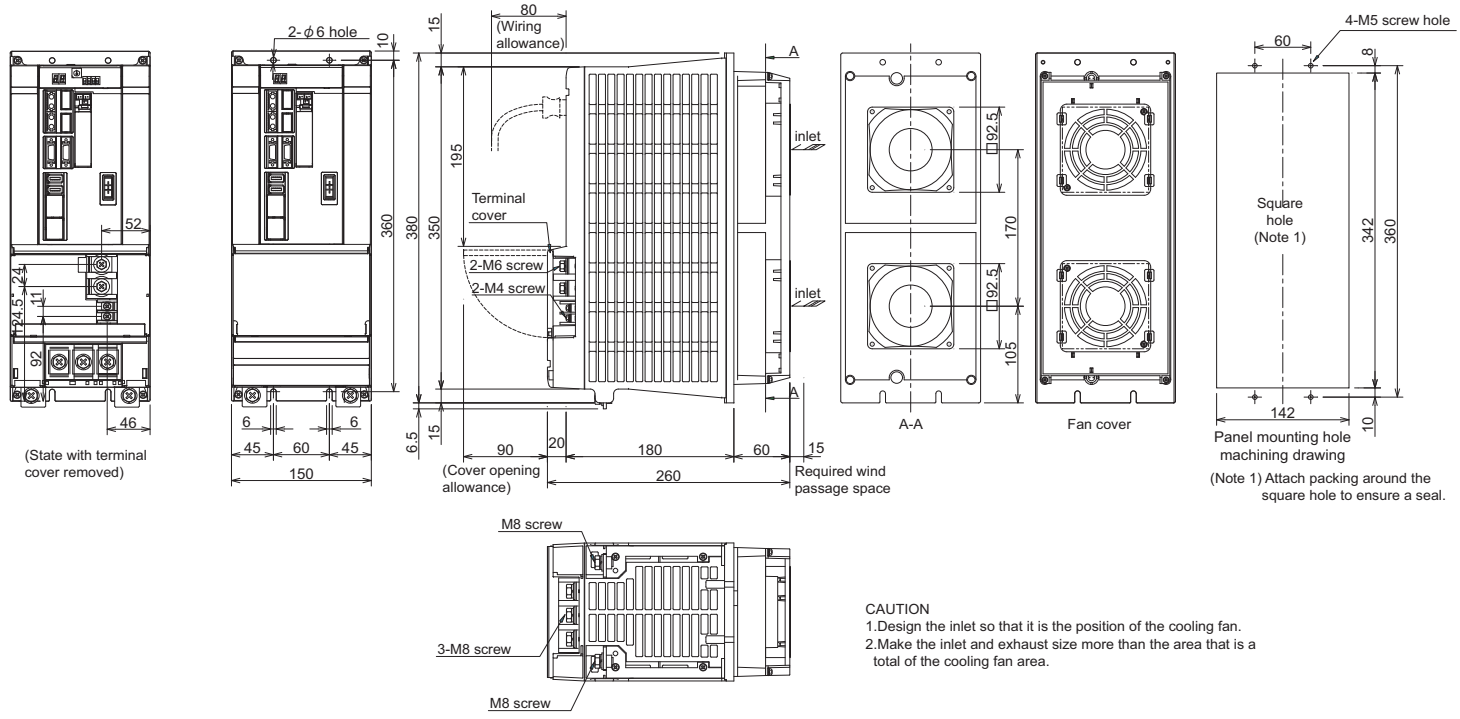
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s^2 (0.5G) / 49m/s^2 (5G)

Recommended wire

	Terminal name					
	TE1 (U, V, W, earth)		TE2 (L+, L-)		TE3 (L11, L21, L12, L22, MC1)	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	60	1/0	Match with TE2 of selected power supply unit		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	38	2			2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	22	4			1.25 to 2	16 to 14

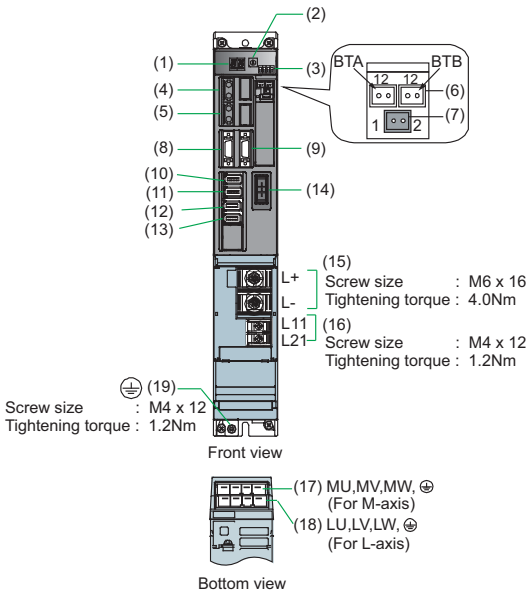
Outline dimension drawings [Unit : mm]



CAUTION
1.Design the inlet so that it is the position of the cooling fan.
2.Make the inlet and exhaust size more than the area that is a total of the cooling fan area.

Servo drive unit

MDS-D-V2-2020



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SWL SWM	Axis No. setting switch
(3)	SW1	Unused axis setting switch
(4)	CN1A	NC or master axis optical communication connector
(5)	CN1B	Slave axis optical communication connector
(6)	BTA BTB	For connecting converged battery unit
(7)	BT1	For connecting battery built-in drive unit ER6V-C119B
(8)	CN9	(Unused)
(9)	CN4	Power supply communication connector
(10)	CN2L	Motor side encoder connection connector (L-axis) 5V power supply capacity: 0.35A
(11)	CN3L	Machine side encoder connection connector (L-axis) 5V power supply capacity: 0.35A
(12)	CN2M	Motor side encoder connection connector (M-axis) 5V power supply capacity: 0.35A
(13)	CN3M	Machine side encoder connection connector (M-axis) 5V power supply capacity: 0.35A
(14)	CN20	Motor brake/dynamic brake control connector (Key way: X type)
(15)	TE2	Main circuit power supply input terminal (DC input)
(16)	TE3	Control power input terminal (single-phase AC input)
(17)	TE1	Motor power supply output connector (M-axis, 3-phase AC output)
(18)		Motor power supply output connector (L-axis, 3-phase AC output)
(19)	PE	Grounding terminal Note that TE1 connector is used for the motor grounding .

Specifications

Item		Specifications	
		L	M
Nominal maximum current(peak)[A]		20	20
Output	Rated voltage[V]	155AC	
	Rated current[A]	6.4	6.4
Input	Rated voltage[V]	270 to 311DC	
	Rated current[A]	14	
Control power	Frequency[Hz]	50 / 60	
	Tolerable frequency fluctuation[%]	±3% max	
	Voltage(50Hz)[V]	200AC	
	Voltage(60Hz)[V]	200 to 230AC	
	Tolerable voltage fluctuation[%]	+10%, -15%	
	Max. current[A]	0.2	
	Max. rush current[A]	30	
	Max. rush conductivity time[ms]	6	
Max. earth leakage current[mA]		2	2
Braking		Regenerative braking and dynamic brakes	
	Dynamic brakes	Built-in	
Heating value	Inside panel[W]	26	
	Outside panel[W]	44	
Cooling method		Forced air cooling	
Mass[kg]		4.5	

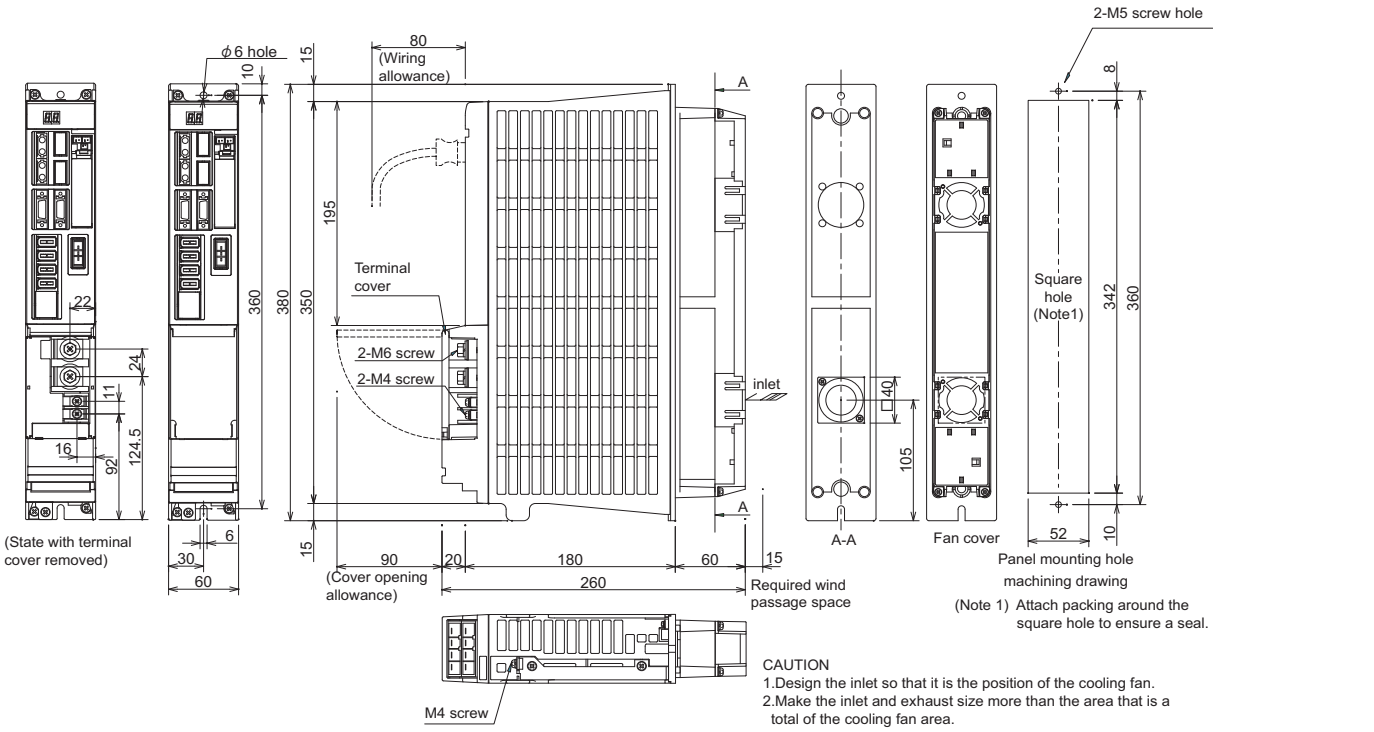
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s^2 (0.5G) / 49m/s^2 (5G)

Recommended wire

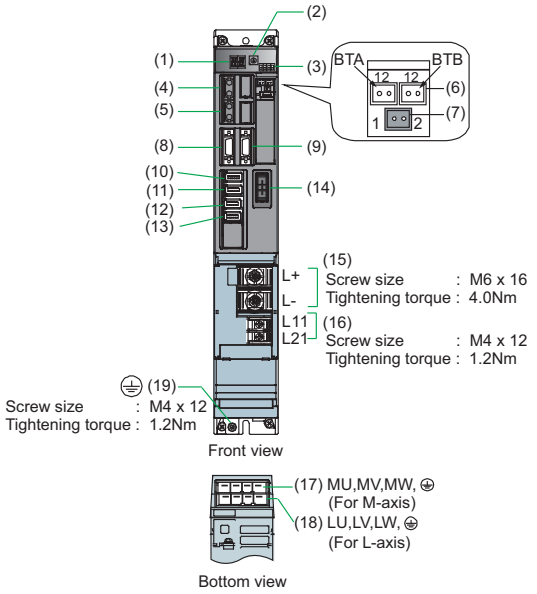
	Terminal name					
	TE1 (U, V, W, earth) The values inside of ( ) are M side		TE2 (L+, L-)		TE3 (L11, L21, L12, L22, MC1)	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	2 (2)	14 (14)	Match with TE2 of selected power supply unit		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	2 (2)	14 (14)			2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	2 (2)	14 (14)			1.25 to 2	16 to 14

Outline dimension drawings [Unit : mm]



Servo drive unit

MDS-D-V2-4020



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SWL SWM	Axis No. setting switch
(3)	SW1	Unused axis setting switch
(4)	CN1A	NC or master axis optical communication connector
(5)	CN1B	Slave axis optical communication connector
(6)	BTA BTB	For connecting converged battery unit
(7)	BT1	For connecting battery built-in drive unit ER6V-C119B
(8)	CN9	(Unused)
(9)	CN4	Power supply communication connector
(10)	CN2L	Motor side encoder connection connector (L-axis) 5V power supply capacity: 0.35A
(11)	CN3L	Machine side encoder connection connector (L-axis) 5V power supply capacity: 0.35A
(12)	CN2M	Motor side encoder connection connector (M-axis) 5V power supply capacity: 0.35A
(13)	CN3M	Machine side encoder connection connector (M-axis) 5V power supply capacity: 0.35A
(14)	CN20	Motor brake/dynamic brake control connector (Key way: X type)
(15)	TE2	Main circuit power supply input terminal (DC input)
(16)	TE3	Control power input terminal (single-phase AC input)
(17)	TE1	Motor power supply output connector (M-axis, 3-phase AC output)
(18)		Motor power supply output connector (L-axis, 3-phase AC output)
(19)	PE	Grounding terminal Note that TE1 connector is used for the motor grounding .

Specifications

Item		Specifications	
		L	M
Nominal maximum current(peak)[A]		40	20
Output	Rated voltage[V]	155AC	
	Rated current[A]	11	6.4
Input	Rated voltage[V]	270 to 311DC	
	Rated current[A]	14	
Control power	Frequency[Hz]	50 / 60	
	Tolerable frequency fluctuation[%]	±3% max	
	Voltage(50Hz)[V]	200AC	
	Voltage(60Hz)[V]	200 to 230AC	
	Tolerable voltage fluctuation[%]	+10%, -15%	
	Max. current[A]	0.2	
	Max. rush current[A]	30	
	Max. rush conductivity time[ms]	6	
Max. earth leakage current[mA]		2	2
Braking		Regenerative braking and dynamic brakes	
	Dynamic brakes	Built-in	
Heating value	Inside panel[W]	28	
	Outside panel[W]	60	
Cooling method		Forced air cooling	
Mass[kg]		4.5	

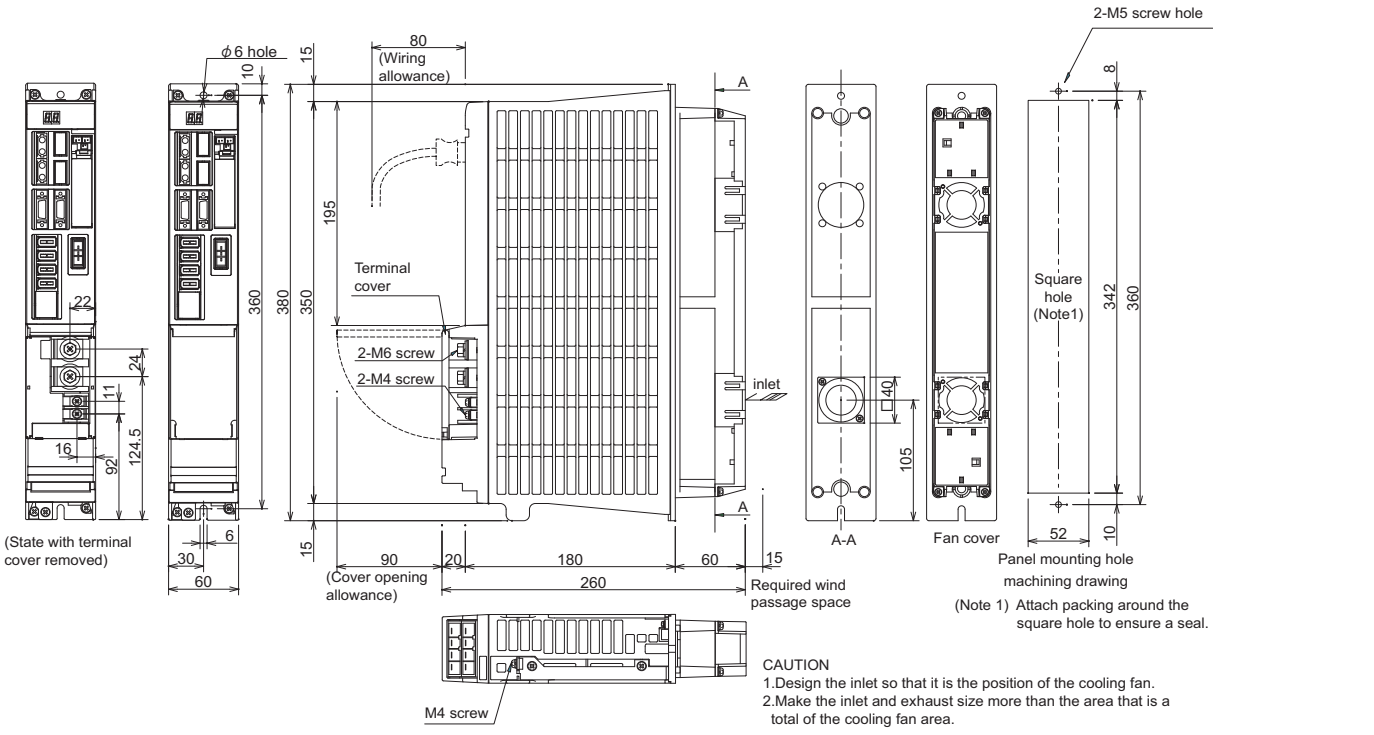
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s^2 (0.5G) / 49m/s^2 (5G)

Recommended wire

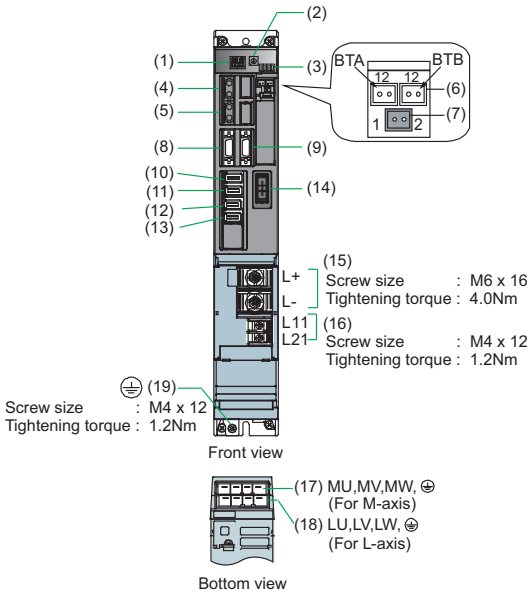
	Terminal name					
	TE1 (U, V, W, earth) The values inside of ( ) are M side		TE2 (L+, L-)		TE3 (L11, L21, L12, L22, MC1)	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	2 (2)	14 (14)	Match with TE2 of selected power supply unit		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	2 (2)	14 (14)			2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	2 (2)	14 (14)			1.25 to 2	16 to 14

Outline dimension drawings [Unit : mm]



Servo drive unit

MDS-D-V2-4040



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SWL SWM	Axis No. setting switch
(3)	SW1	Unused axis setting switch
(4)	CN1A	NC or master axis optical communication connector
(5)	CN1B	Slave axis optical communication connector
(6)	BTA BTB	For connecting converged battery unit
(7)	BT1	For connecting battery built-in drive unit ER6V-C119B
(8)	CN9	(Unused)
(9)	CN4	Power supply communication connector
(10)	CN2L	Motor side encoder connection connector (L-axis) 5V power supply capacity: 0.35A
(11)	CN3L	Machine side encoder connection connector (L-axis) 5V power supply capacity: 0.35A
(12)	CN2M	Motor side encoder connection connector (M-axis) 5V power supply capacity: 0.35A
(13)	CN3M	Machine side encoder connection connector (M-axis) 5V power supply capacity: 0.35A
(14)	CN20	Motor brake/dynamic brake control connector (Key way: X type)
(15)	TE2	Main circuit power supply input terminal (DC input)
(16)	TE3	Control power input terminal (single-phase AC input)
(17)	TE1	Motor power supply output connector (M-axis, 3-phase AC output)
(18)		Motor power supply output connector (L-axis, 3-phase AC output)
(19)	PE	Grounding terminal Note that TE1 connector is used for the motor grounding .

Specifications

Item		Specifications	
		L	M
Nominal maximum current(peak)[A]		40	40
Output	Rated voltage[V]	155AC	
	Rated current[A]	11	11
Input	Rated voltage[V]	270 to 311DC	
	Rated current[A]	14	
Control power	Frequency[Hz]	50 / 60	
	Tolerable frequency fluctuation[%]	±3% max	
	Voltage(50Hz)[V]	200AC	
	Voltage(60Hz)[V]	200 to 230AC	
	Tolerable voltage fluctuation[%]	+10%, -15%	
	Max. current[A]	0.2	
	Max. rush current[A]	30	
	Max. rush conductivity time[ms]	6	
Max. earth leakage current[mA]		2	2
Braking		Regenerative braking and dynamic brakes	
	Dynamic brakes	Built-in	
Heating value	Inside panel[W]	31	
	Outside panel[W]	75	
Cooling method		Forced air cooling	
Mass[kg]		4.5	

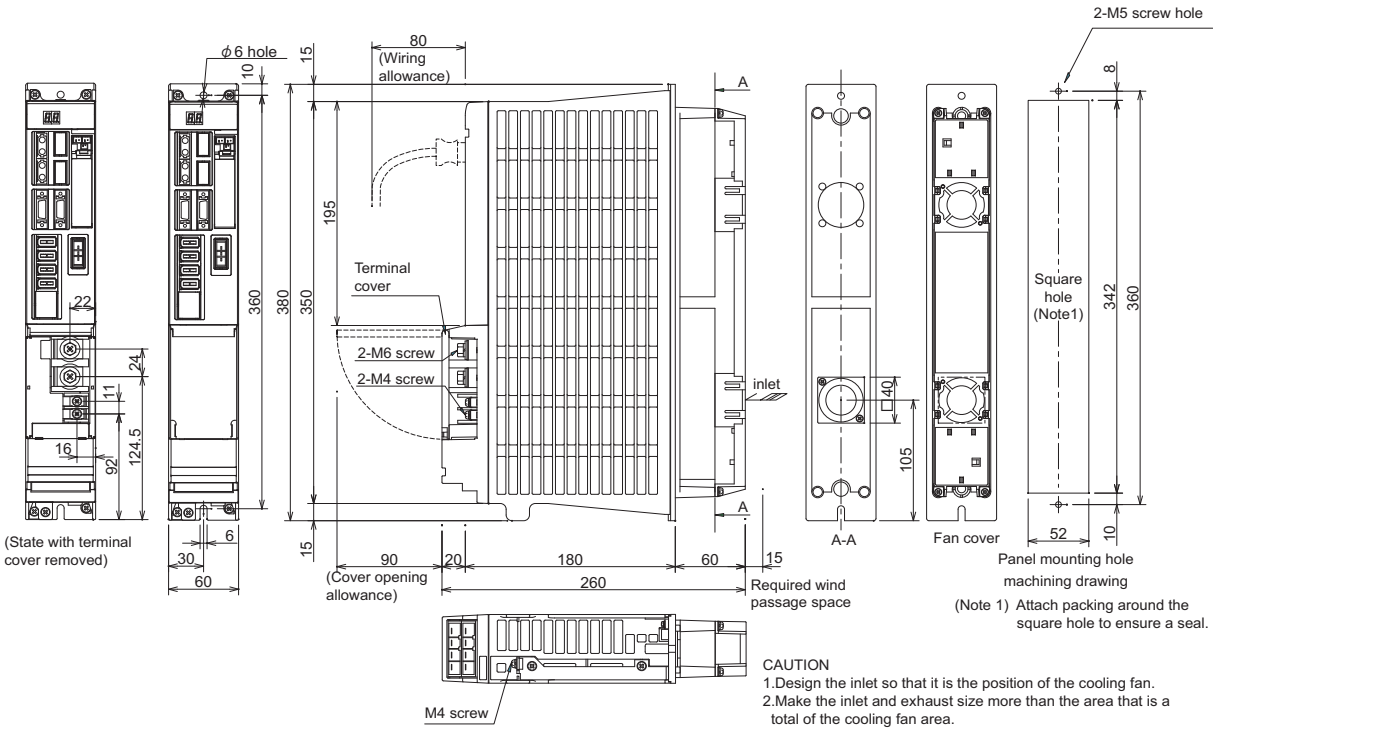
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s^2 (0.5G) / 49m/s^2 (5G)

Recommended wire

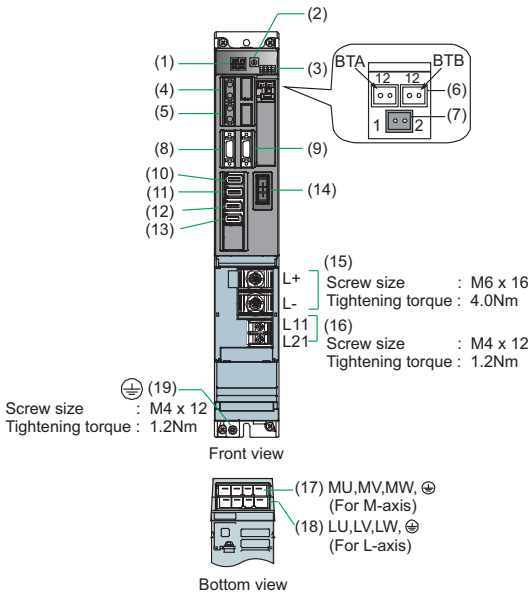
	Terminal name					
	TE1 (U, V, W, earth) The values inside of ( ) are M side		TE2 (L+, L-)		TE3 (L11, L21, L12, L22, MC1)	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	2 (2)	14 (14)	Match with TE2 of selected power supply unit		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	2 (2)	14 (14)			2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	2 (2)	14 (14)			1.25 to 2	16 to 14

Outline dimension drawings [Unit : mm]



Servo drive unit

MDS-D-V2-8040



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SWL SWM	Axis No. setting switch
(3)	SW1	Unused axis setting switch
(4)	CN1A	NC or master axis optical communication connector
(5)	CN1B	Slave axis optical communication connector
(6)	BTA BTB	For connecting converged battery unit
(7)	BT1	For connecting battery built-in drive unit ER6V-C119B
(8)	CN9	(Unused)
(9)	CN4	Power supply communication connector
(10)	CN2L	Motor side encoder connection connector (L-axis) 5V power supply capacity: 0.35A
(11)	CN3L	Machine side encoder connection connector (L-axis) 5V power supply capacity: 0.35A
(12)	CN2M	Motor side encoder connection connector (M-axis) 5V power supply capacity: 0.35A
(13)	CN3M	Machine side encoder connection connector (M-axis) 5V power supply capacity: 0.35A
(14)	CN20	Motor brake/dynamic brake control connector (Key way: X type)
(15)	TE2	Main circuit power supply input terminal (DC input)
(16)	TE3	Control power input terminal (single-phase AC input)
(17)	TE1	Motor power supply output connector (M-axis, 3-phase AC output)
(18)		Motor power supply output connector (L-axis, 3-phase AC output)
(19)	PE	Grounding terminal Note that TE1 connector is used for the motor grounding .

Specifications

Item		Specifications	
		L	M
Nominal maximum current(peak)[A]		80	40
Output	Rated voltage[V]	155AC	
	Rated current[A]	16	11
Input	Rated voltage[V]	270 to 311DC	
	Rated current[A]	21	
Control power	Frequency[Hz]	50 / 60	
	Tolerable frequency fluctuation[%]	±3% max	
	Voltage(50Hz)[V]	200AC	
	Voltage(60Hz)[V]	200 to 230AC	
	Tolerable voltage fluctuation[%]	+10%, -15%	
	Max. current[A]	0.2	
	Max. rush current[A]	30	
	Max. rush conductivity time[ms]	6	
Max. earth leakage current[mA]		2	2
Braking		Regenerative braking and dynamic brakes	
	Dynamic brakes	Built-in	
Heating value	Inside panel[W]	35	
	Outside panel[W]	109	
Cooling method		Forced air cooling	
Mass[kg]		4.5	

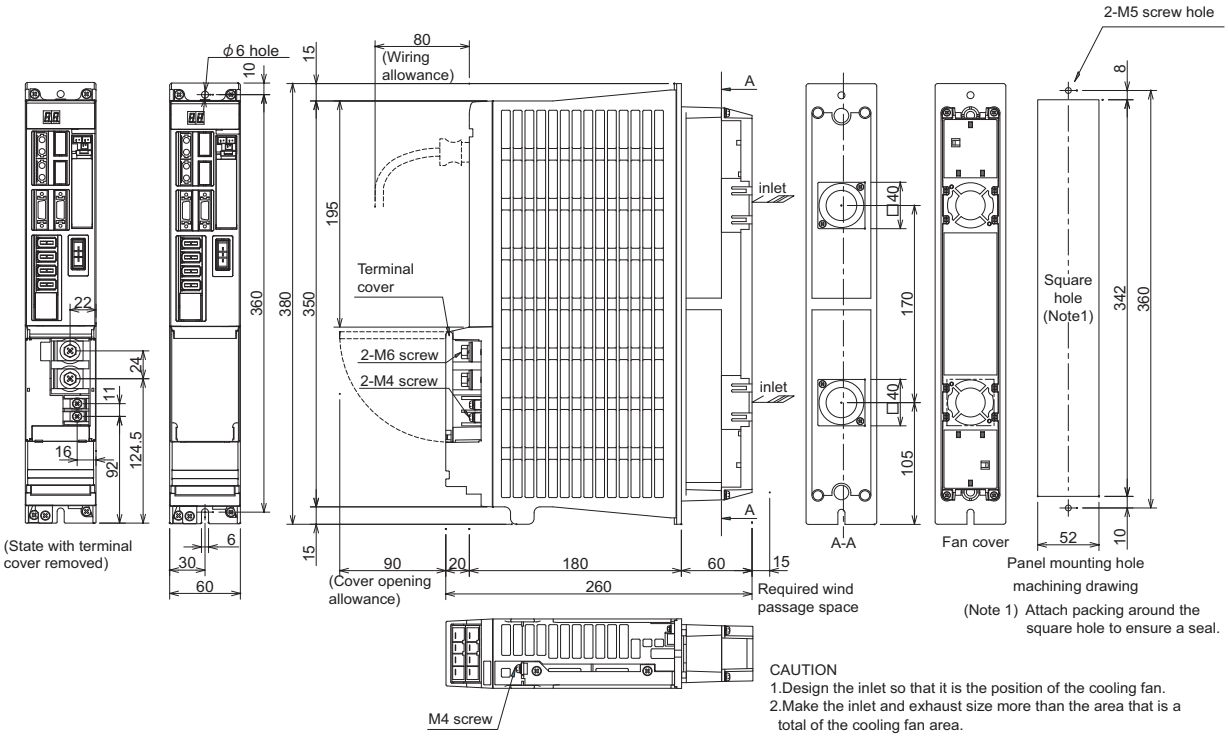
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s^2 (0.5G) / 49m/s^2 (5G)

Recommended wire

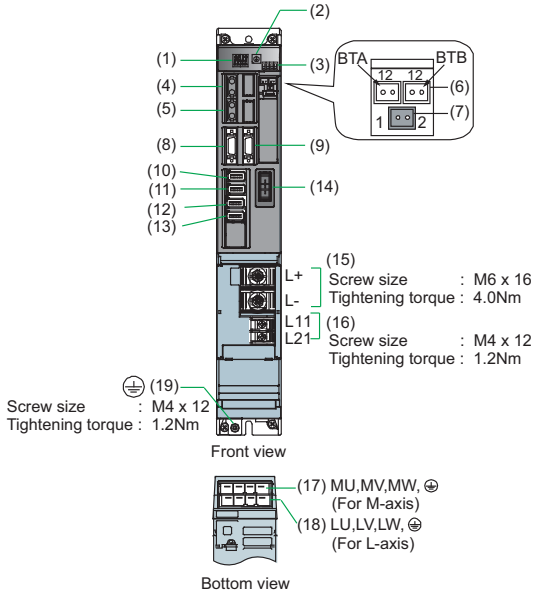
	Terminal name					
	TE1 (U, V, W, earth) The values inside of ( ) are M side		TE2 (L+, L-)		TE3 (L11, L21, L12, L22, MC1)	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	3.5 (2)	12 (14)	Match with TE2 of selected power supply unit		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	3.5 (2)	12 (14)			2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	2 (2)	14 (14)			1.25 to 2	16 to 14

Outline dimension drawings [Unit : mm]



Servo drive unit

MDS-D-V2-8080



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SWL SWM	Axis No. setting switch
(3)	SW1	Unused axis setting switch
(4)	CN1A	NC or master axis optical communication connector
(5)	CN1B	Slave axis optical communication connector
(6)	BTA BTB	For connecting converged battery unit
(7)	BT1	For connecting battery built-in drive unit ER6V-C119B
(8)	CN9	(Unused)
(9)	CN4	Power supply communication connector
(10)	CN2L	Motor side encoder connection connector (L-axis) 5V power supply capacity: 0.35A
(11)	CN3L	Machine side encoder connection connector (L-axis) 5V power supply capacity: 0.35A
(12)	CN2M	Motor side encoder connection connector (M-axis) 5V power supply capacity: 0.35A
(13)	CN3M	Machine side encoder connection connector (M-axis) 5V power supply capacity: 0.35A
(14)	CN20	Motor brake/dynamic brake control connector (Key way: X type)
(15)	TE2	Main circuit power supply input terminal (DC input)
(16)	TE3	Control power input terminal (single-phase AC input)
(17)	TE1	Motor power supply output connector (M-axis, 3-phase AC output)
(18)		Motor power supply output connector (L-axis, 3-phase AC output)
(19)	PE	Grounding terminal Note that TE1 connector is used for the motor grounding .

Specifications

Item		Specifications	
		L	M
Nominal maximum current(peak)[A]		80	80
Output	Rated voltage[V]	155AC	
	Rated current[A]	16	16
Input	Rated voltage[V]	270 to 311DC	
	Rated current[A]	28	
Control power	Frequency[Hz]	50 / 60	
	Tolerable frequency fluctuation[%]	±3% max	
	Voltage(50Hz)[V]	200AC	
	Voltage(60Hz)[V]	200 to 230AC	
	Tolerable voltage fluctuation[%]	+10%, -15%	
	Max. current[A]	0.2	
	Max. rush current[A]	30	
	Max. rush conductivity time[ms]	6	
Max. earth leakage current[mA]		2	2
Braking		Regenerative braking and dynamic brakes	
	Dynamic brakes	Built-in	
Heating value	Inside panel[W]	40	
	Outside panel[W]	142	
Cooling method		Forced air cooling	
Mass[kg]		4.5	

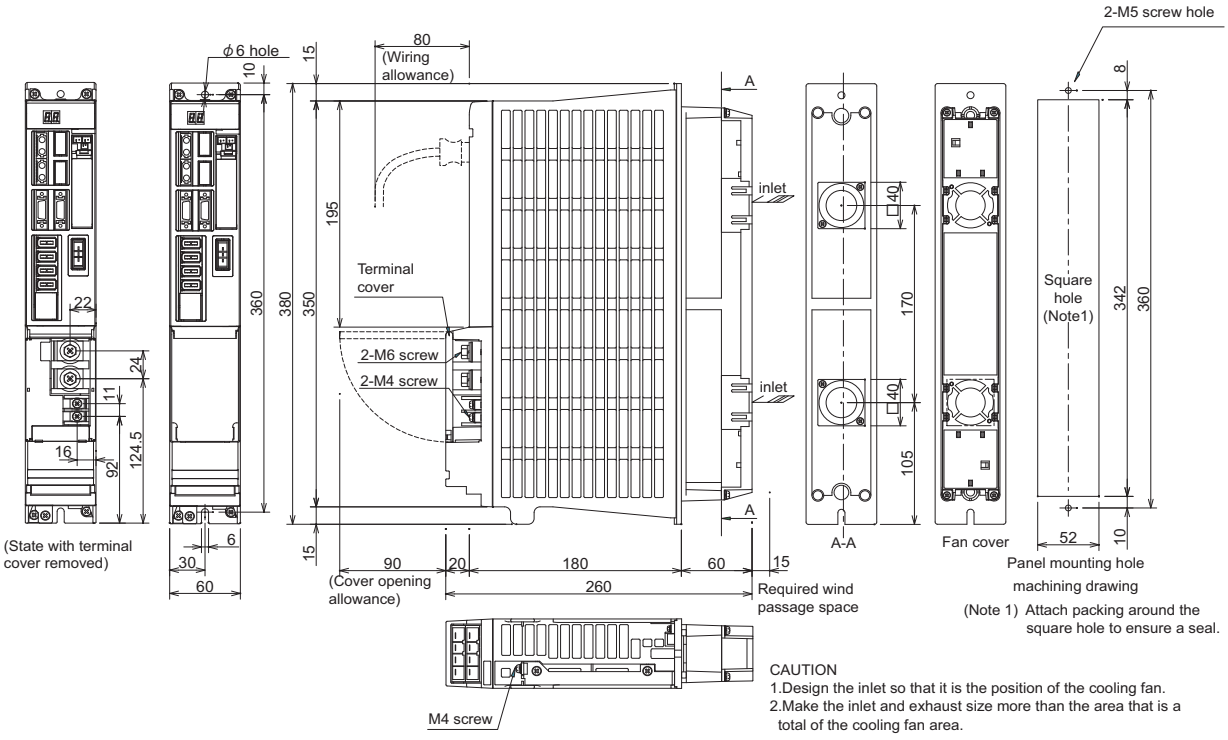
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s^2 (0.5G) / 49m/s^2 (5G)

Recommended wire

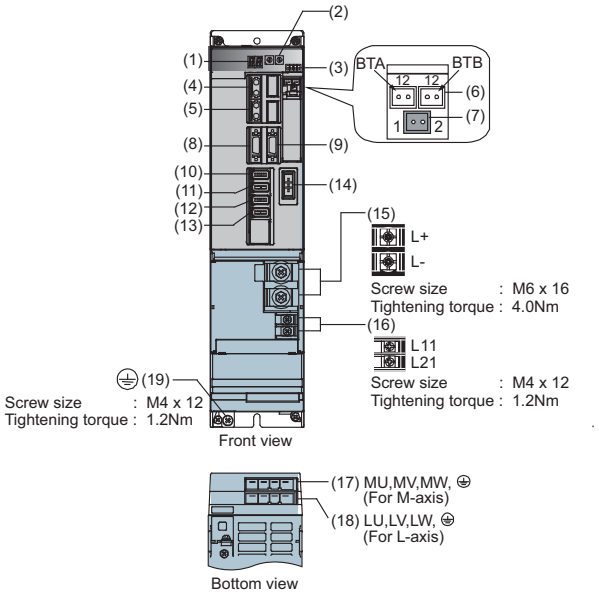
	Terminal name					
	TE1 (U, V, W, earth) The values inside of ( ) are M side		TE2 (L+, L-)		TE3 (L11, L21, L12, L22, MC1)	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	3.5 (3.5)	12 (12)	Match with TE2 of selected power supply unit		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	3.5 (3.5)	12 (12)			2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	2 (2)	14 (14)			1.25 to 2	16 to 14

Outline dimension drawings [Unit : mm]



Servo drive unit

MDS-D-V2-16080



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SWL SWM	Axis No. setting switch
(3)	SW1	Unused axis setting switch
(4)	CN1A	NC or master axis optical communication connector
(5)	CN1B	Slave axis optical communication connector
(6)	BTA BTB	For connecting converged battery unit
(7)	BT1	For connecting battery built-in drive unit ER6V-C119B
(8)	CN9	(Unused)
(9)	CN4	Power supply communication connector
(10)	CN2L	Motor side encoder connection connector (L-axis) 5V power supply capacity: 0.35A
(11)	CN3L	Machine side encoder connection connector (L-axis) 5V power supply capacity: 0.35A
(12)	CN2M	Motor side encoder connection connector (M-axis) 5V power supply capacity: 0.35A
(13)	CN3M	Machine side encoder connection connector (M-axis) 5V power supply capacity: 0.35A
(14)	CN20	Motor brake/dynamic brake control connector (Key way: X type)
(15)	TE2	Main circuit power supply input terminal (DC input)
(16)	TE3	Control power input terminal (single-phase AC input)
(17)	TE1	Motor power supply output connector (M-axis, 3-phase AC output)
(18)		Motor power supply output connector (L-axis, 3-phase AC output)
(19)	PE	Grounding terminal Note that TE1 connector is used for the motor grounding .

Specifications

Item		Specifications	
		L	M
Nominal maximum current(peak)[A]		160	80
Output	Rated voltage[V]	155AC	
	Rated current[A]	29.6	16
Input	Rated voltage[V]	270 to 311DC	
	Rated current[A]	44	
Control power	Frequency[Hz]	50 / 60	
	Tolerable frequency fluctuation[%]	±3% max	
	Voltage(50Hz)[V]	200AC	
	Voltage(60Hz)[V]	200 to 230AC	
	Tolerable voltage fluctuation[%]	+10%, -15%	
	Max. current[A]	0.2	
	Max. rush current[A]	30	
	Max. rush conductivity time[ms]	6	
Max. earth leakage current[mA]		2	2
Braking		Regenerative braking and dynamic brakes	
	Dynamic brakes	Built-in	
Heating value	Inside panel[W]	51	
	Outside panel[W]	219	
Cooling method		Forced air cooling	
Mass[kg]		5.2	

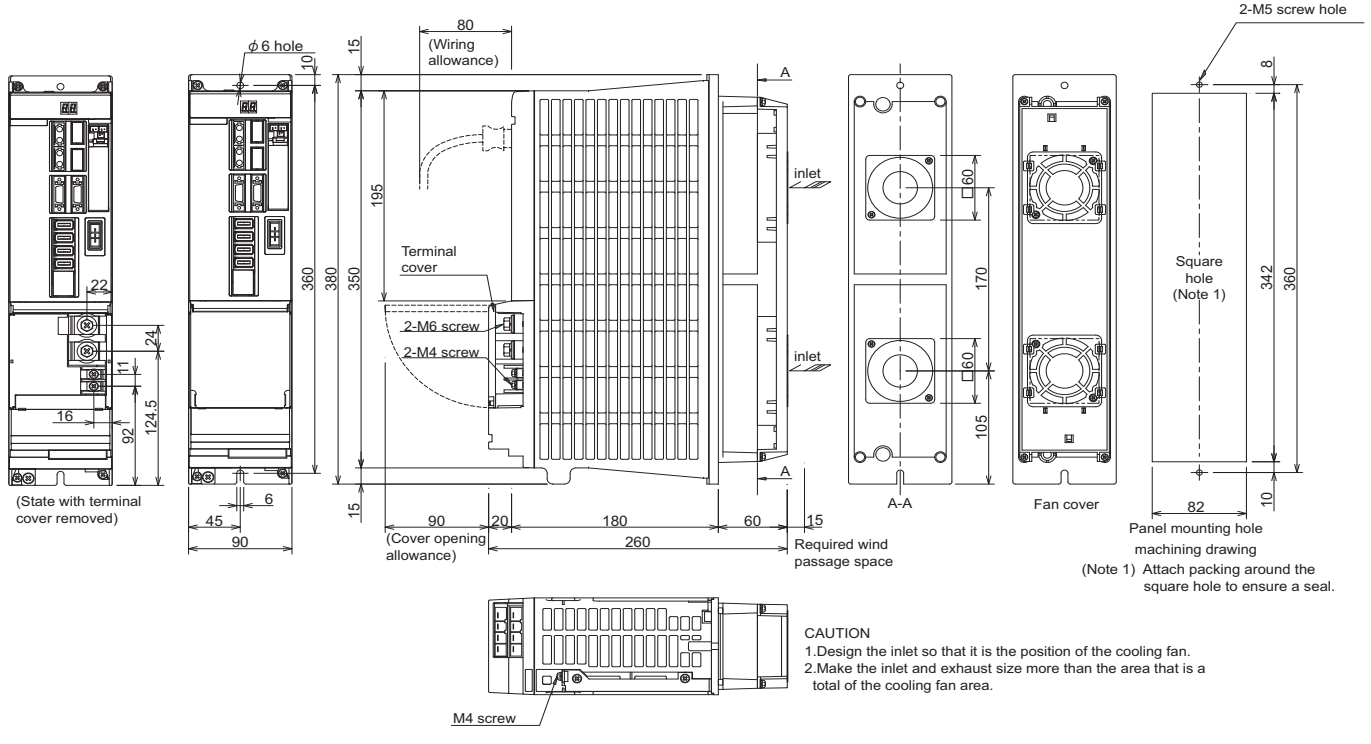
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s^2 (0.5G) / 49m/s^2 (5G)

Recommended wire

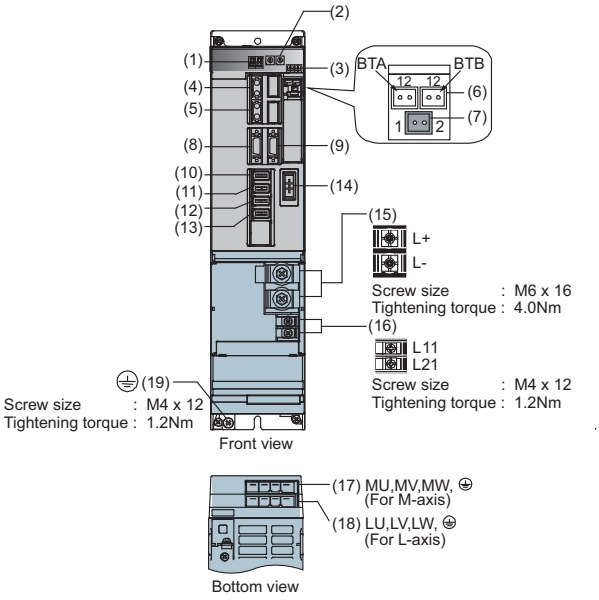
	Terminal name					
	TE1 (U, V, W, earth) The values inside of ( ) are M side		TE2 (L+, L-)		TE3 (L11, L21, L12, L22, MC1)	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	5.5 (3.5)	10 (12)	Match with TE2 of selected power supply unit		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	5.5 (3.5)	10 (12)			2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	3.5 (2)	12 (14)			1.25 to 2	16 to 14

Outline dimension drawings [Unit : mm]



Servo drive unit

MDS-D-V2-160160



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SWL SWM	Axis No. setting switch
(3)	SW1	Unused axis setting switch
(4)	CN1A	NC or master axis optical communication connector
(5)	CN1B	Slave axis optical communication connector
(6)	BTA BTB	For connecting converged battery unit
(7)	BT1	For connecting battery built-in drive unit ER6V-C119B
(8)	CN9	(Unused)
(9)	CN4	Power supply communication connector
(10)	CN2L	Motor side encoder connection connector (L-axis) 5V power supply capacity: 0.35A
(11)	CN3L	Machine side encoder connection connector (L-axis) 5V power supply capacity: 0.35A
(12)	CN2M	Motor side encoder connection connector (M-axis) 5V power supply capacity: 0.35A
(13)	CN3M	Machine side encoder connection connector (M-axis) 5V power supply capacity: 0.35A
(14)	CN20	Motor brake/dynamic brake control connector (Key way: X type)
(15)	TE2	Main circuit power supply input terminal (DC input)
(16)	TE3	Control power input terminal (single-phase AC input)
(17)	TE1	Motor power supply output connector (M-axis, 3-phase AC output)
(18)		Motor power supply output connector (L-axis, 3-phase AC output)
(19)	PE	Grounding terminal Note that TE1 connector is used for the motor grounding .

Specifications

Item		Specifications	
		L	M
Nominal maximum current(peak)[A]		160	160
Output	Rated voltage[V]	155AC	
	Rated current[A]	29.6	29.6
Input	Rated voltage[V]	270 to 311DC	
	Rated current[A]	60	
Control power	Frequency[Hz]	50 / 60	
	Tolerable frequency fluctuation[%]	±3% max	
	Voltage(50Hz)[V]	200AC	
	Voltage(60Hz)[V]	200 to 230AC	
	Tolerable voltage fluctuation[%]	+10%, -15%	
	Max. current[A]	0.2	
	Max. rush current[A]	30	
	Max. rush conductivity time[ms]	6	
Max. earth leakage current[mA]		2	2
Braking		Regenerative braking and dynamic brakes	
	Dynamic brakes	Built-in	
Heating value	Inside panel[W]	62	
	Outside panel[W]	296	
Cooling method		Forced air cooling	
Mass[kg]		5.2	

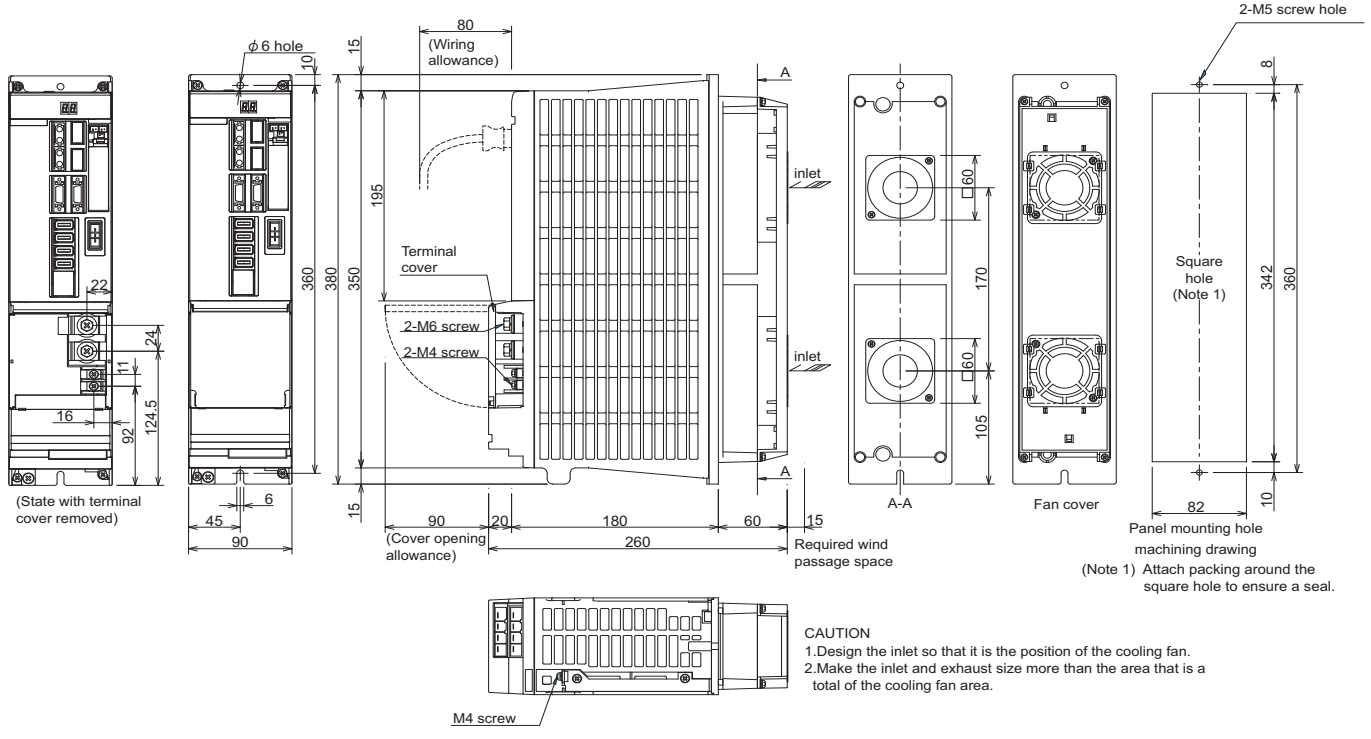
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s^2 (0.5G) / 49m/s^2 (5G)

Recommended wire

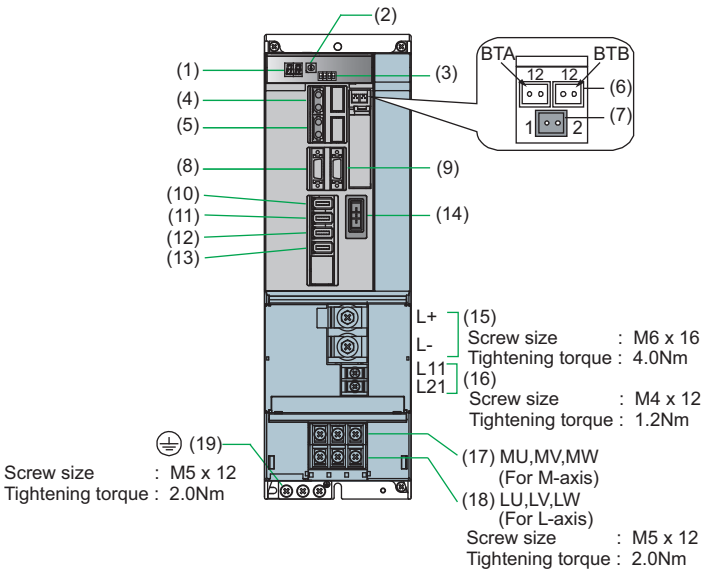
	Terminal name					
	TE1 (U, V, W, earth) The values inside of ( ) are M side		TE2 (L+, L-)		TE3 (L11, L21, L12, L22, MC1)	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	5.5 (5.5)	10 (10)	Match with TE2 of selected power supply unit		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	5.5 (5.5)	10 (10)			2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	3.5 (3.5)	12 (12)			1.25 to 2	16 to 14

Outline dimension drawings [Unit : mm]



Servo drive unit

MDS-D-V2-160160W



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SWL SWM	Axis No. setting switch
(3)	SW1	Unused axis setting switch
(4)	CN1A	NC or master axis optical communication connector
(5)	CN1B	Slave axis optical communication connector
(6)	BTA BTB	For connecting converged battery unit
(7)	BT1	For connecting battery built-in drive unit ER6V-C119B
(8)	CN9	(Unused)
(9)	CN4	Power supply communication connector
(10)	CN2L	Motor side encoder connection connector (L-axis) 5V power supply capacity: 0.35A
(11)	CN3L	Machine side encoder connection connector (L-axis) 5V power supply capacity: 0.35A
(12)	CN2M	Motor side encoder connection connector (M-axis) 5V power supply capacity: 0.35A
(13)	CN3M	Machine side encoder connection connector (M-axis) 5V power supply capacity: 0.35A
(14)	CN20	Motor brake/dynamic brake control connector (Key way: X type)
(15)	TE2	Main circuit power supply input terminal (DC input)
(16)	TE3	Control power input terminal (single-phase AC input)
(17)	TE1	Motor power supply output terminal (M-axis, 3-phase AC output)
(18)		Motor power supply output terminal (L-axis, 3-phase AC output)
(19)	PE	Grounding terminal Note that TE1 connector is used for the motor grounding .

Specifications

Item		Specifications	
		L	M
Nominal maximum current(peak)[A]		160	160
Output	Rated voltage[V]	155AC	
	Rated current[A]	40.2	40.2
Input	Rated voltage[V]	270 to 311DC	
	Rated current[A]	70	
Control power	Frequency[Hz]	50 / 60	
	Tolerable frequency fluctuation[%]	±3% max	
	Voltage(50Hz)[V]	200AC	
	Voltage(60Hz)[V]	200 to 230AC	
	Tolerable voltage fluctuation[%]	+10%, -15%	
	Max. current[A]	0.2	
	Max. rush current[A]	30	
	Max. rush conductivity time[ms]	6	
Max. earth leakage current[mA]		2	2
Braking		Regenerative braking and dynamic brakes	
	Dynamic brakes	Built-in	
Heating value	Inside panel[W]	77	
	Outside panel[W]	403	
Cooling method		Forced air cooling	
Mass[kg]		6.3	

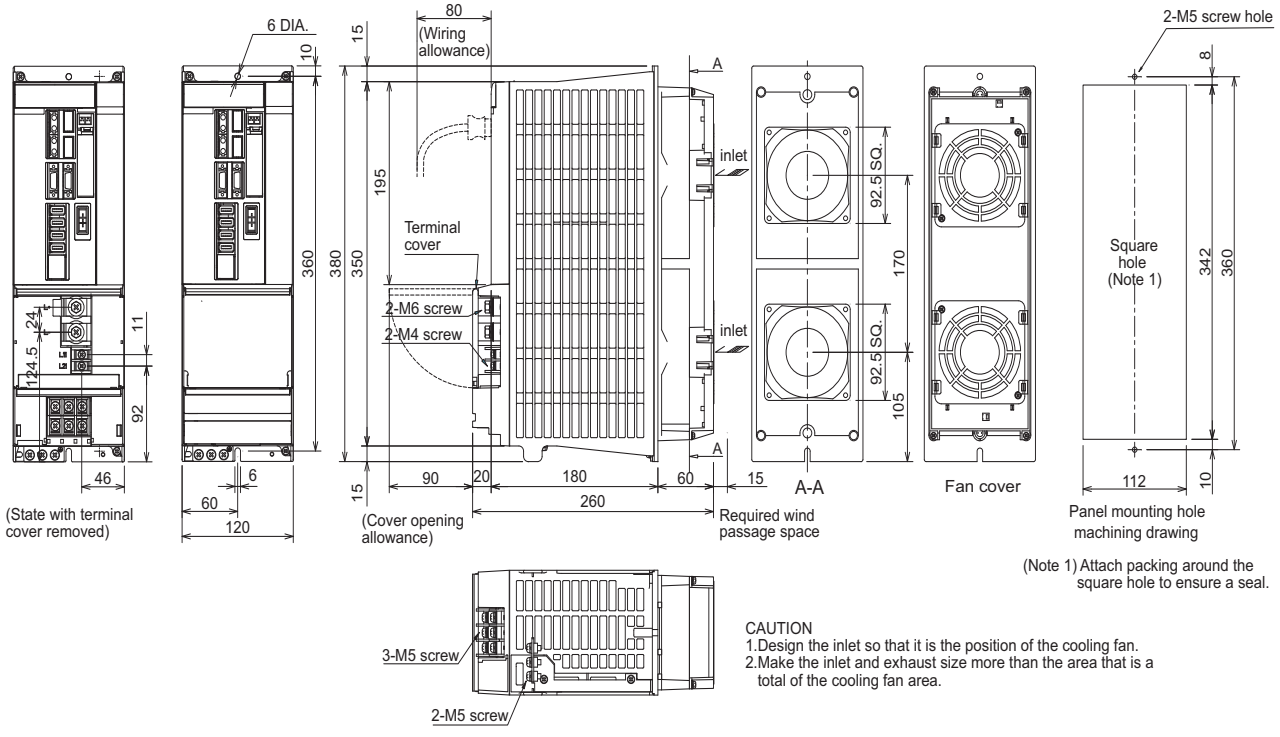
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s^2 (0.5G) / 49m/s^2 (5G)

Recommended wire

	Terminal name					
	TE1 (U, V, W, earth) The values inside of ( ) are M side		TE2 (L+, L-)		TE3 (L11, L21, L12, L22, MC1)	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	14 (14)	6 (6)	Match with TE2 of selected power supply unit		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	8 (8)	8 (8)			2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	5.5 (5.5)	10 (10)			1.25 to 2	16 to 14

Outline dimension drawings [Unit : mm]

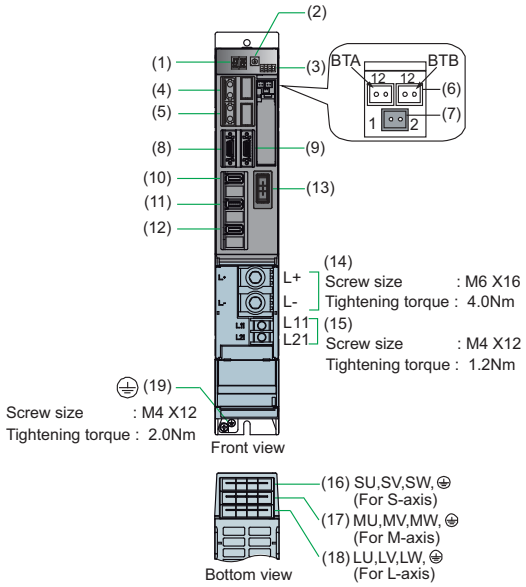


(Note 1) Attach packing around the square hole to ensure a seal.

CAUTION
1.Design the inlet so that it is the position of the cooling fan.
2.Make the inlet and exhaust size more than the area that is a total of the cooling fan area.

Servo drive unit

MDS-DM-V3-202020



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SWL SWM SWS	Axis No. setting switch (L,M,S-axis)
(3)	SW1	Unused axis setting switch (L,M,S-axis)
(4)	CN1A	NC or master axis optical communication connector
(5)	CN1B	Slave axis optical communication connector
(6)	BTA BTB	For connecting converged battery unit
(7)	BT1	For connecting battery built-in drive unit ER6V-C119B
(8)	CN9	(Unused)
(9)	CN4	Power supply communication connector
(10)	CN2L	Motor side encoder connection connector (L-axis) 5V power supply capacity: 0.35A
(11)	CN2M	Motor side encoder connection connector (M-axis) 5V power supply capacity: 0.35A
(12)	CN2S	Motor side encoder connection connector (S-axis) 5V power supply capacity: 0.35A
(13)	CN20	Motor brake/dynamic brake control connector (Key way: X type)
(14)	TE2	Main circuit power supply input terminal (DC input)
(15)	TE3	Control power input terminal (single-phase AC input)
(16)	TE1	Motor power supply output connector (S-axis, 3-phase AC output)
(17)		Motor power supply output connector (M-axis, 3-phase AC output)
(18)		Motor power supply output connector (L-axis, 3-phase AC output)
(19)	PE	Grounding terminal Note that TE1 connector is used for the motor grounding.

Specifications

Item		Specifications
Nominal maximum current(peak)[A]		20/20/20
Output	Rated voltage[V]	155AC
	Rated current[A]	6.4/6.4/6.4
Input	Rated voltage[V]	270 to 311DC
	Rated current[A]	21
Control power	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±3% max
	Voltage(50Hz)[V]	200AC
	Voltage(60Hz)[V]	200 to 230AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Max. current[A]	0.2
	Max. rush current[A]	30
	Max. rush conductivity time[ms]	6
Max. earth leakage current[mA]		2
Braking		Regenerative braking and dynamic brakes
	Dynamic brakes	Built-in
Heating value	Inside panel[W]	89
	Outside panel[W]	0
Cooling method		Forced air cooling
Mass[kg]		3.8

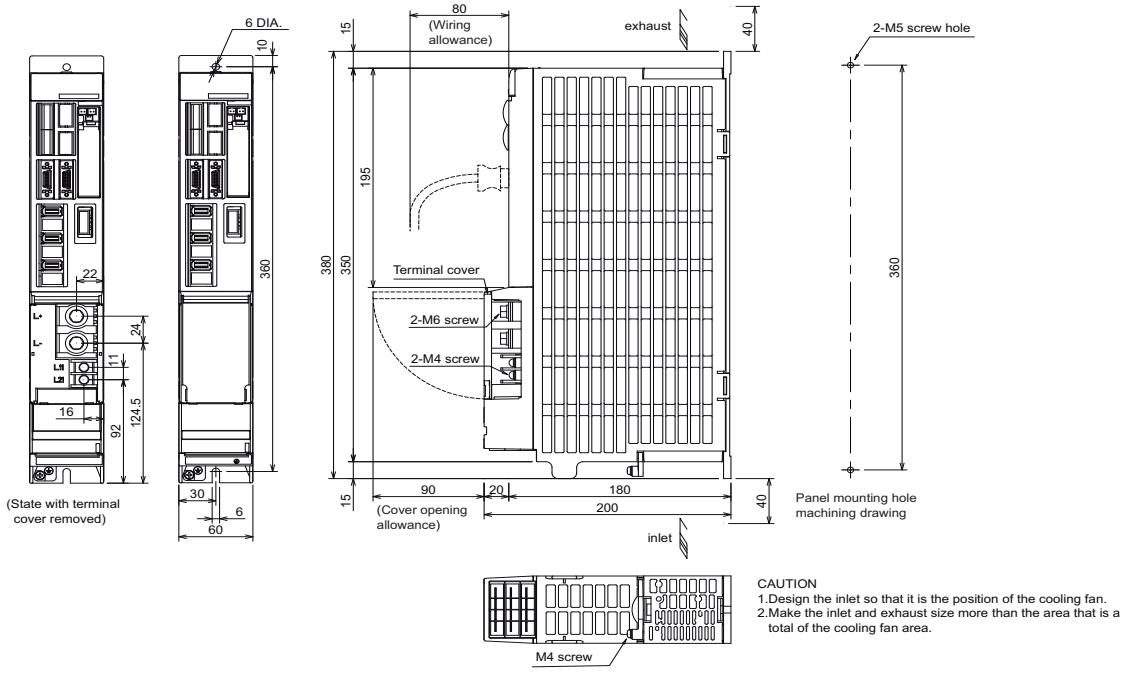
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s^2 (0.5G) / 49m/s^2 (5G)

Recommended wire

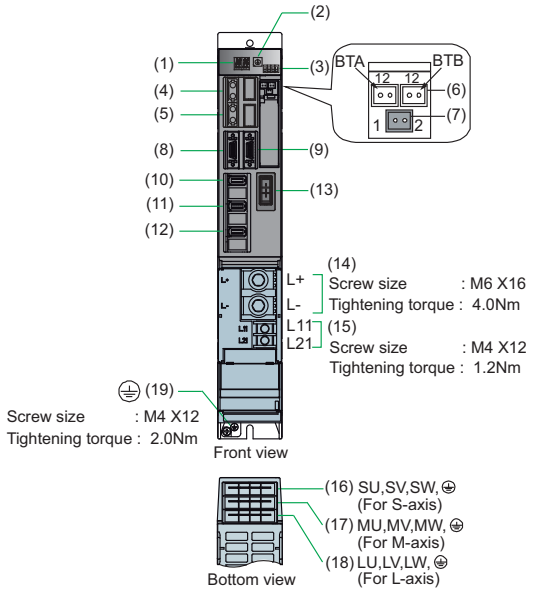
	Terminal name					
	TE1 (U, V, W, earth)		TE2 (L+, L-)		TE3 (L11, L21, L12, L22, MC1)	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	2	14	Match with TE2 of selected power supply unit		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	2	14			2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	2	14			1.25 to 2	16 to 14

Outline dimension drawings [Unit : mm]



Servo drive unit

MDS-DM-V3-404040



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SWL SWM SWS	Axis No. setting switch (L,M,S-axis)
(3)	SW1	Unused axis setting switch (L,M,S-axis)
(4)	CN1A	NC or master axis optical communication connector
(5)	CN1B	Slave axis optical communication connector
(6)	BTA BTB	For connecting converged battery unit
(7)	BT1	For connecting battery built-in drive unit ER6V-C119B
(8)	CN9	(Unused)
(9)	CN4	Power supply communication connector
(10)	CN2L	Motor side encoder connection connector (L-axis) 5V power supply capacity: 0.35A
(11)	CN2M	Motor side encoder connection connector (M-axis) 5V power supply capacity: 0.35A
(12)	CN2S	Motor side encoder connection connector (S-axis) 5V power supply capacity: 0.35A
(13)	CN20	Motor brake/dynamic brake control connector (Key way: X type)
(14)	TE2	Main circuit power supply input terminal (DC input)
(15)	TE3	Control power input terminal (single-phase AC input)
(16)	TE1	Motor power supply output connector (S-axis, 3-phase AC output)
(17)		Motor power supply output connector (M-axis, 3-phase AC output)
(18)		Motor power supply output connector (L-axis, 3-phase AC output)
(19)	PE	Grounding terminal Note that TE1 connector is used for the motor grounding.

Specifications

Item		Specifications
Nominal maximum current(peak)[A]		40/40/40
Output	Rated voltage[V]	155AC
	Rated current[A]	11/11/11
Input	Rated voltage[V]	270 to 311DC
	Rated current[A]	21
Control power	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±3% max
	Voltage(50Hz)[V]	200AC
	Voltage(60Hz)[V]	200 to 230AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Max. current[A]	0.2
	Max. rush current[A]	30
	Max. rush conductivity time[ms]	6
Max. earth leakage current[mA]		2
Braking		Regenerative braking and dynamic brakes
	Dynamic brakes	Built-in
Heating value	Inside panel[W]	159
	Outside panel[W]	0
Cooling method		Forced air cooling
Mass[kg]		3.8

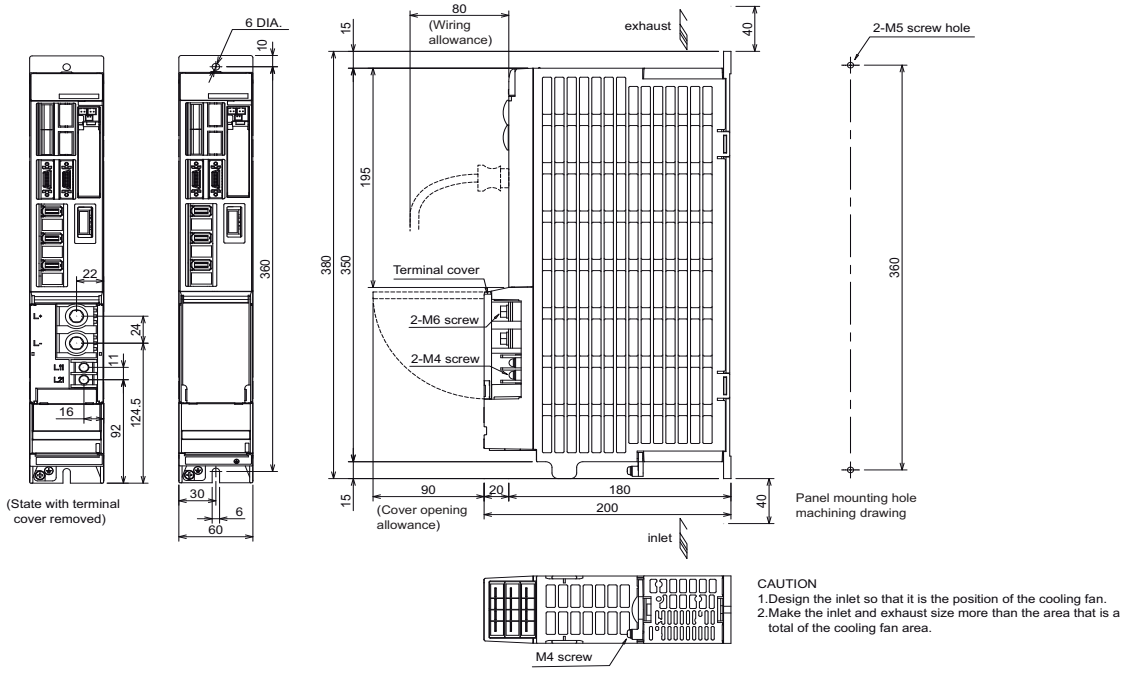
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s^2 (0.5G) / 49m/s^2 (5G)

Recommended wire

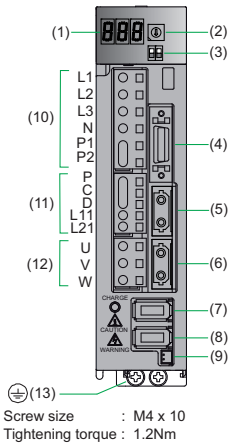
	Terminal name					
	TE1 (U, V, W, earth)		TE2 (L+, L-)		TE3 (L11, L21, L12, L22, MC1)	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	2	14	Match with TE2 of selected power supply unit		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	2	14			2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	2	14			1.25 to 2	16 to 14

Outline dimension drawings [Unit : mm]



Servo drive unit

MDS-D-SVJ3-03

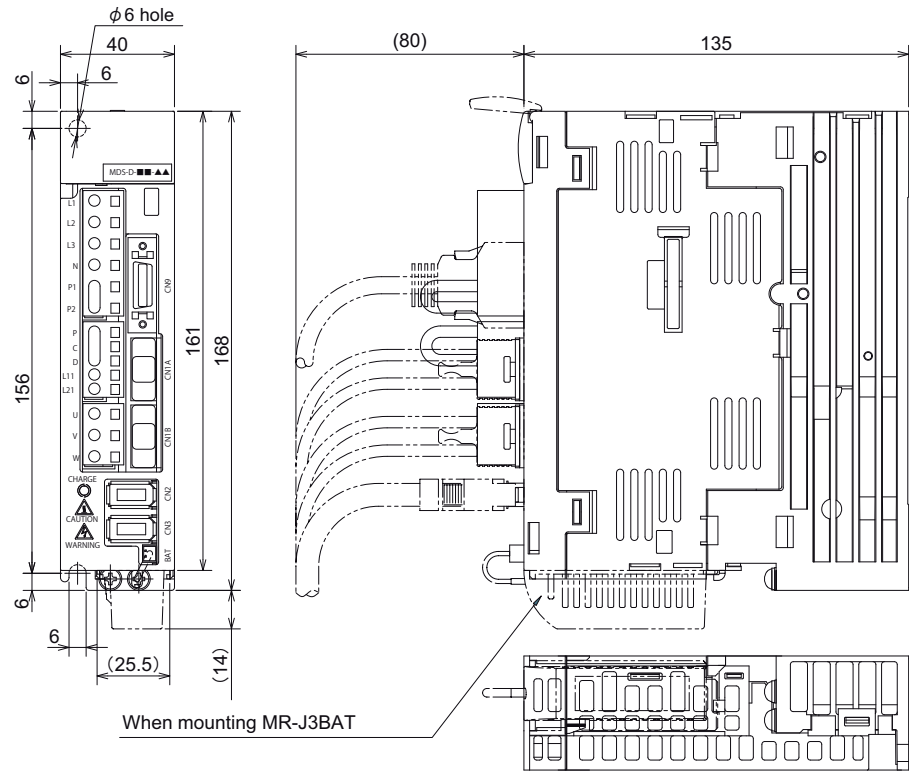


No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SW1	Axis No. setting switch
(3)	SW2	For machine tool builder adjustment: Always OFF (facing bottom)
(4)	CN9	Connector for DIO/analog output
(5)	CN1A	NC or master axis optical communication connector
(6)	CN1B	Slave axis optical communication connector
(7)	CN2	Motor side encoder connection connector
(8)	CN3	Machine side encoder connection connector
(9)	BAT	Battery connection connector
(10)	CNP1	L1,L2,L3: Power supply input terminal (3-phase AC input) N: Test terminal for the manufacturer (Do not connect.) P1,P2: not used (short-circuit between the P1 and P2.)
(11)	CNP2	Regenerative resistor connection terminal Control power input terminal (single-phase AC input)
(12)	CNP3	Motor power output terminal (3-phase AC output)
(13)	PE	Grounding terminal

Specifications

Item		Specifications
Rated output[kW]		0.3
Power facility capacity[kVA]		0.5
Output	Rated voltage[V]	155AC
	Rated current[A]	1.5
Input	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±5% max
	Rated voltage(50Hz) [V]	200AC
	Rated voltage(60Hz) [V]	200 to 230AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Rated current[A]	1.5
Control power	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±5% max
	Voltage(50Hz)[V]	200AC
	Voltage(60Hz)[V]	200 to 230AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Max. Current[A]	0.2
	Max. Rush current[A]	30
	Max.Rush conductivity time[ms]	6
Maximum earth leakage current[mA]		2
Braking		Regenerative braking and dynamic brakes
	Dynamic brakes	Built-in
Main circuit method		Converter with resistor regeneration circuit
Heating value	Inside panel[W]	25
Cooling method		Natural-cooling
Mass[kg]		0.8
Selection example of contactor (option part)		S-T12-AC200V
	Free-air thermal current[A]	20
	Selection current (for 200V input)[A]	2.5
	Rated output[kW]	0.3
Selection example of circuit protector (option part)		NF30-SW3P-5A
	Rated current[A]	5
	Selection current (for 200V input)[A]	2.5
	Rated output[kW]	0.3
Regenerative option		Refer to "Regenerative option".

Outline dimension drawings [Unit : mm]



Environmental conditions

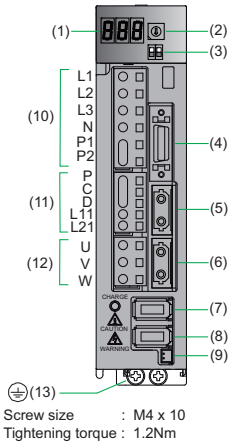
Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight);no corrosive gas, inflammable gas, oil mist, or dust
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s^2 (0.5G) / 49m/s^2 (5G)

Recommended wire

	Terminal name									
	CNP1 (L1, L2, L3, earth)		CNP2 (L11, L21)		CNP3 (U, V, W, earth)		CNP2 (P,C)		Magnetic brake	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	2	14	2	14	2	14	2	14	2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	2	14	2	14	2	14	2	14	2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	2	14	1.25	16	2	14	2	14	1.25	16

Servo drive unit

MDS-D-SVJ3-03NA

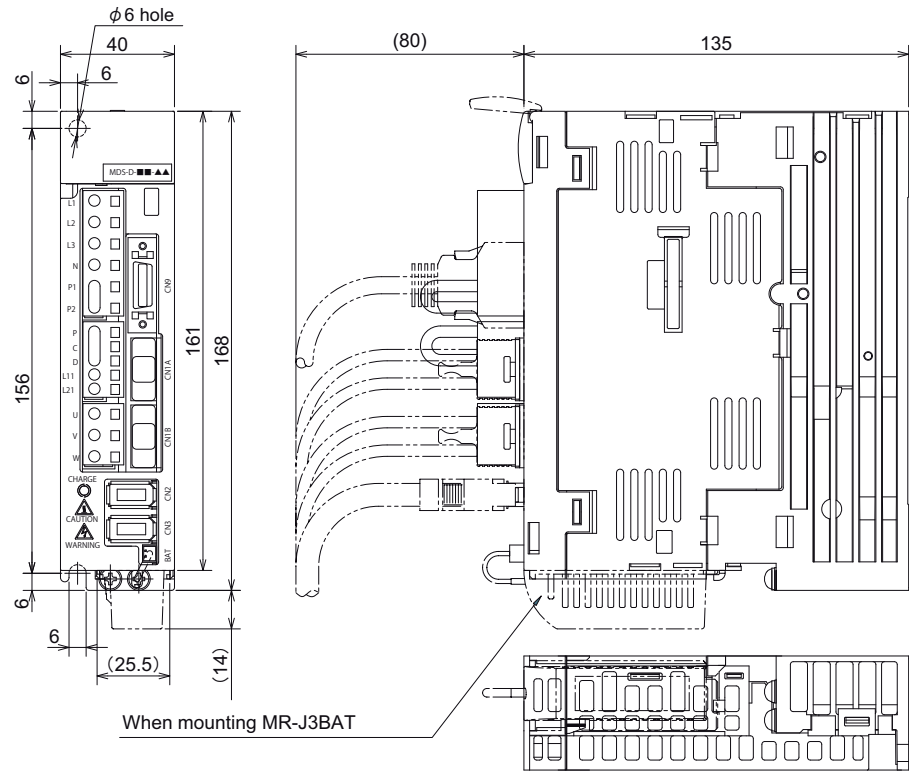


No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SW1	Axis No. setting switch
(3)	SW2	For machine tool builder adjustment: Always OFF (facing bottom)
(4)	CN9	Connector for DIO/analog output
(5)	CN1A	NC or master axis optical communication connector
(6)	CN1B	Slave axis optical communication connector
(7)	CN2	Motor side encoder connection connector
(8)	CN3	Machine side encoder connection connector
(9)	BAT	Battery connection connector
(10)	CNP1	L1,L2,L3: Power supply input terminal (3-phase AC input) N: Test terminal for the manufacturer (Do not connect.) P1,P2: not used (short-circuit between the P1 and P2.)
(11)	CNP2	Regenerative resistor connection terminal Control power input terminal (single-phase AC input)
(12)	CNP3	Motor power output terminal (3-phase AC output)
(13)	PE	Grounding terminal

Specifications

Item		Specifications
Rated output[kW]		0.3
Power facility capacity[kVA]		0.5
Output	Rated voltage[V]	155AC
	Rated current[A]	1.5
Input	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±5% max
	Rated voltage(50Hz) [V]	200AC
	Rated voltage(60Hz) [V]	200 to 230AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Rated current[A]	1.5
Control power	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±5% max
	Voltage(50Hz)[V]	200AC
	Voltage(60Hz)[V]	200 to 230AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Max. Current[A]	0.2
	Max. Rush current[A]	30
	Max.Rush conductivity time[ms]	6
Maximum earth leakage current[mA]		2
Braking		Regenerative braking and dynamic brakes
	Dynamic brakes	Built-in
Main circuit method		Converter with resistor regeneration circuit
Heating value	Inside panel[W]	25
Cooling method		Natural-cooling
Mass[kg]		0.8
Selection example of contactor (option part)		S-T12-AC200V
	Free-air thermal current[A]	20
	Selection current (for 200V input)[A]	2.5
	Rated output[kW]	0.3
Selection example of circuit protector (option part)		NF30-SW3P-5A
	Rated current[A]	5
	Selection current (for 200V input)[A]	2.5
	Rated output[kW]	0.3
Regenerative option		Refer to "Regenerative option".

Outline dimension drawings [Unit : mm]



Environmental conditions

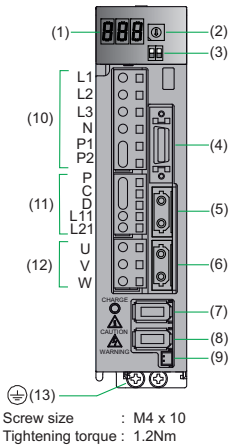
Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight);no corrosive gas, inflammable gas, oil mist, or dust
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s^2 (0.5G) / 49m/s^2 (5G)

Recommended wire

	Terminal name									
	CNP1 (L1, L2, L3, earth)		CNP2 (L11, L21)		CNP3 (U, V, W, earth)		CNP2 (P,C)		Magnetic brake	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	2	14	2	14	2	14	2	14	2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	2	14	2	14	2	14	2	14	2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	2	14	1.25	16	2	14	2	14	1.25	16

Servo drive unit

MDS-D-SVJ3-04

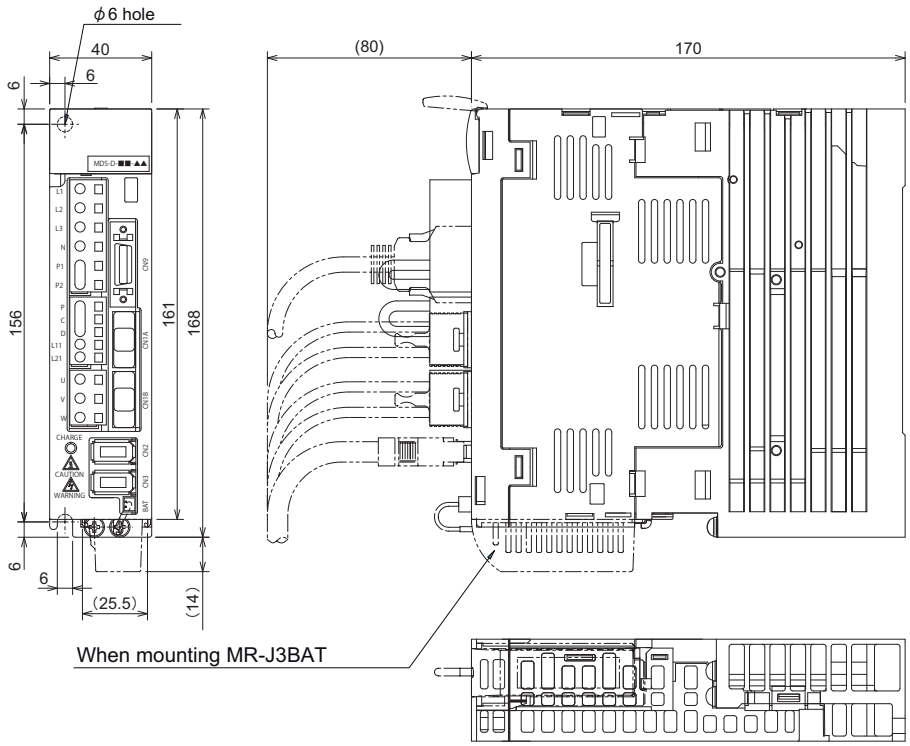


No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SW1	Axis No. setting switch
(3)	SW2	For machine tool builder adjustment: Always OFF (facing bottom)
(4)	CN9	Connector for DIO/analog output
(5)	CN1A	NC or master axis optical communication connector
(6)	CN1B	Slave axis optical communication connector
(7)	CN2	Motor side encoder connection connector
(8)	CN3	Machine side encoder connection connector
(9)	BAT	Battery connection connector
(10)	CNP1	L1,L2,L3: Power supply input terminal (3-phase AC input) N: Test terminal for the manufacturer (Do not connect.) P1,P2: not used (short-circuit between the P1 and P2.)
(11)	CNP2	Regenerative resistor connection terminal Control power input terminal (single-phase AC input)
(12)	CNP3	Motor power output terminal (3-phase AC output)
(13)	PE	Grounding terminal

Specifications

Item		Specifications
Rated output[kW]		0.4
Power facility capacity[kVA]		1.0
Output	Rated voltage[V]	155AC
	Rated current[A]	3.2
Input	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±5% max
	Rated voltage(50Hz) [V]	200AC
	Rated voltage(60Hz) [V]	200 to 230AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Rated current[A]	2.9
Control power	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±5% max
	Voltage(50Hz)[V]	200AC
	Voltage(60Hz)[V]	200 to 230AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Max. Current[A]	0.2
	Max. Rush current[A]	30
	Max.Rush conductivity time[ms]	6
Maximum earth leakage current[mA]		2
Braking		Regenerative braking and dynamic brakes
	Dynamic brakes	Built-in
Main circuit method		Converter with resistor regeneration circuit
Heating value	Inside panel[W]	35
Cooling method		Natural-cooling
Mass[kg]		1.0
Selection example of contactor (option part)		S-T12-AC200V
	Free-air thermal current[A]	20
	Selection current (for 200V input)[A]	5
	Rated output[kW]	0.4
Selection example of circuit protector (option part)		NF30-SW3P-10A
	Rated current[A]	10
	Selection current (for 200V input)[A]	5
	Rated output[kW]	0.4
Regenerative option		Refer to "Regenerative option".

Outline dimension drawings [Unit : mm]



Environmental conditions

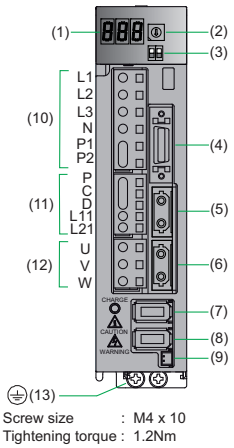
Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight);no corrosive gas, inflammable gas, oil mist, or dust
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s^2 (0.5G) / 49m/s^2 (5G)

Recommended wire

	Terminal name									
	CNP1 (L1, L2, L3, earth)		CNP2 (L11, L21)		CNP3 (U, V, W, earth)		CNP2 (P,C)		Magnetic brake	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	2	14	2	14	2	14	2	14	2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	2	14	2	14	2	14	2	14	2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	2	14	1.25	16	2	14	2	14	1.25	16

Servo drive unit

MDS-D-SVJ3-04NA

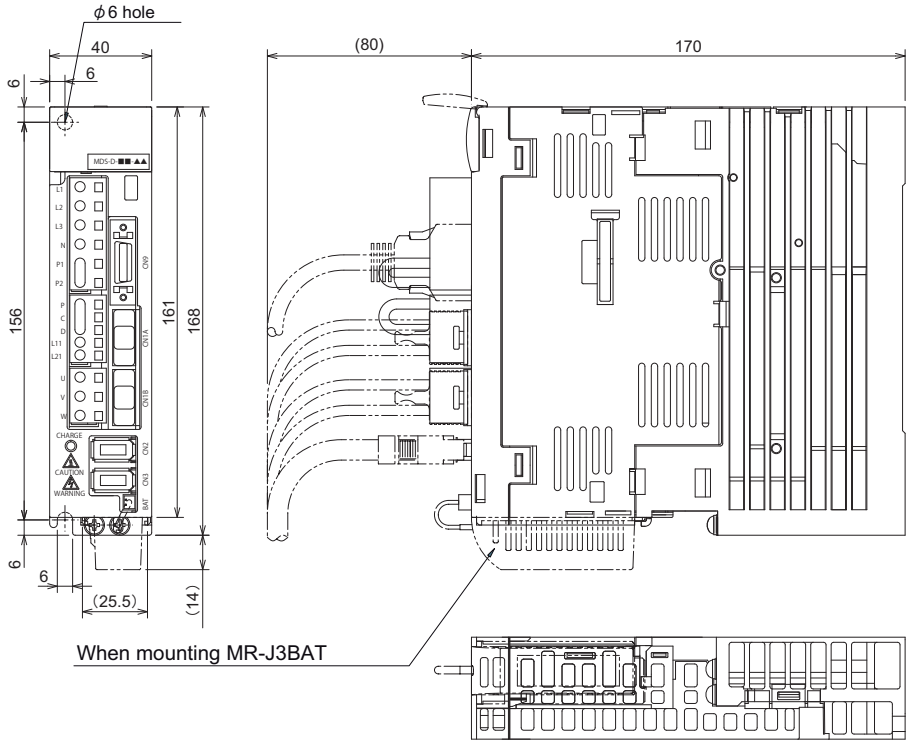


No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SW1	Axis No. setting switch
(3)	SW2	For machine tool builder adjustment: Always OFF (facing bottom)
(4)	CN9	Connector for DIO/analog output
(5)	CN1A	NC or master axis optical communication connector
(6)	CN1B	Slave axis optical communication connector
(7)	CN2	Motor side encoder connection connector
(8)	CN3	Machine side encoder connection connector
(9)	BAT	Battery connection connector
(10)	CNP1	L1,L2,L3: Power supply input terminal (3-phase AC input) N: Test terminal for the manufacturer (Do not connect.) P1,P2: not used (short-circuit between the P1 and P2.)
(11)	CNP2	Regenerative resistor connection terminal Control power input terminal (single-phase AC input)
(12)	CNP3	Motor power output terminal (3-phase AC output)
(13)	PE	Grounding terminal

Specifications

Item		Specifications
Rated output[kW]		0.4
Power facility capacity[kVA]		1.0
Output	Rated voltage[V]	155AC
	Rated current[A]	3.2
Input	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±5% max
	Rated voltage(50Hz) [V]	200AC
	Rated voltage(60Hz) [V]	200 to 230AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Rated current[A]	2.9
Control power	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±5% max
	Voltage(50Hz)[V]	200AC
	Voltage(60Hz)[V]	200 to 230AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Max. Current[A]	0.2
	Max. Rush current[A]	30
	Max.Rush conductivity time[ms]	6
Maximum earth leakage current[mA]		2
Braking		Regenerative braking and dynamic brakes
	Dynamic brakes	Built-in
Main circuit method		Converter with resistor regeneration circuit
Heating value	Inside panel[W]	35
Cooling method		Natural-cooling
Mass[kg]		1.0
Selection example of contactor (option part)		S-T12-AC200V
	Free-air thermal current[A]	20
	Selection current (for 200V input)[A]	5
	Rated output[kW]	0.4
Selection example of circuit protector (option part)		NF30-SW3P-10A
	Rated current[A]	10
	Selection current (for 200V input)[A]	5
	Rated output[kW]	0.4
Regenerative option		Refer to "Regenerative option".

Outline dimension drawings [Unit : mm]



Environmental conditions

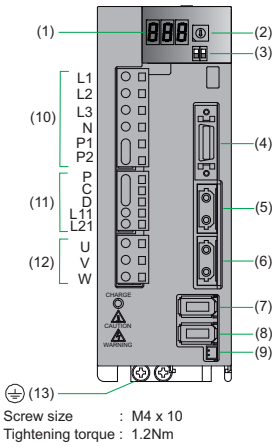
Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight);no corrosive gas, inflammable gas, oil mist, or dust
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s^2 (0.5G) / 49m/s^2 (5G)

Recommended wire

	Terminal name									
	CNP1 (L1, L2, L3, earth)		CNP2 (L11, L21)		CNP3 (U, V, W, earth)		CNP2 (P,C)		Magnetic brake	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	2	14	2	14	2	14	2	14	2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	2	14	2	14	2	14	2	14	2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	2	14	1.25	16	2	14	2	14	1.25	16

Servo drive unit

MDS-D-SVJ3-07

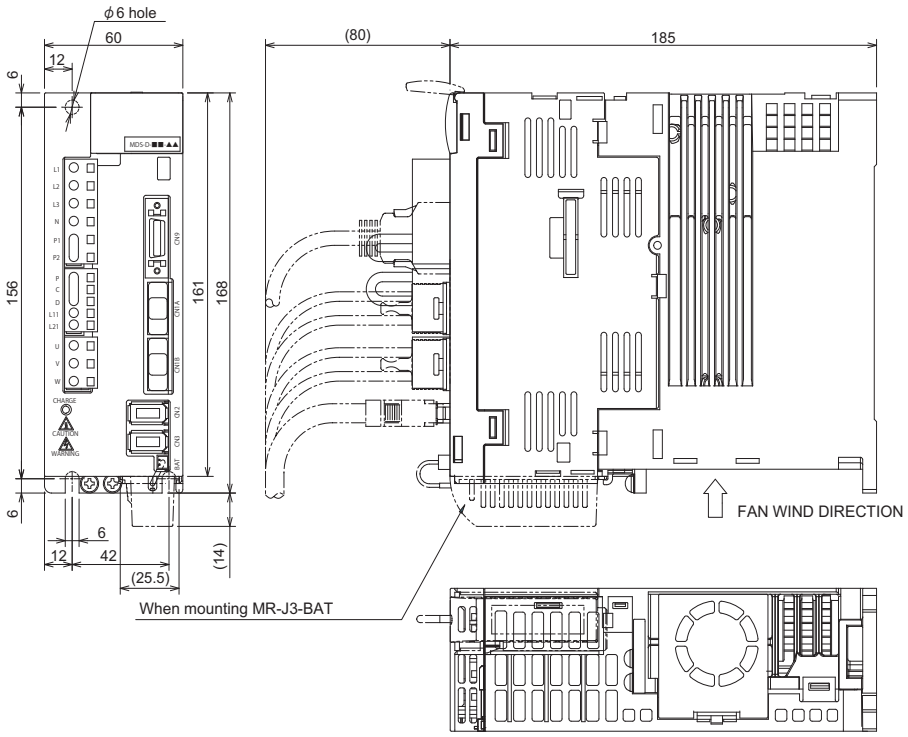


No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SW1	Axis No. setting switch
(3)	SW2	For machine tool builder adjustment: Always OFF (facing bottom)
(4)	CN9	Connector for DIO/analog output
(5)	CN1A	NC or master axis optical communication connector
(6)	CN1B	Slave axis optical communication connector
(7)	CN2	Motor side encoder connection connector
(8)	CN3	Machine side encoder connection connector
(9)	BAT	Battery connection connector
(10)	CNP1	L1,L2,L3: Power supply input terminal (3-phase AC input) N: Test terminal for the manufacturer (Do not connect.) P1,P2: not used (short-circuit between the P1 and P2.)
(11)	CNP2	Regenerative resistor connection terminal Control power input terminal (single-phase AC input)
(12)	CNP3	Motor power output terminal (3-phase AC output)
(13)	PE	Grounding terminal

Specifications

Item		Specifications
Rated output[kW]		0.7
Power facility capacity[kVA]		1.3
Output	Rated voltage[V]	155AC
	Rated current[A]	5.8
Input	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±5% max
	Rated voltage(50Hz) [V]	200AC
	Rated voltage(60Hz) [V]	200 to 230AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Rated current[A]	3.8
Control power	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±5% max
	Voltage(50Hz)[V]	200AC
	Voltage(60Hz)[V]	200 to 230AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Max. Current[A]	0.2
	Max. Rush current[A]	30
	Max.Rush conductivity time[ms]	6
Maximum earth leakage current[mA]		2
Braking		Regenerative braking and dynamic brakes
	Dynamic brakes	Built-in
Main circuit method		Converter with resistor regeneration circuit
Heating value	Inside panel[W]	50
Cooling method		Forced air cooling
Mass[kg]		1.4
Selection example of contactor (option part)		S-T12-AC200V
	Free-air thermal current[A]	20
	Selection current (for 200V input)[A]	7
	Rated output[kW]	0.75
Selection example of circuit protector (option part)		NF30-SW3P-15A
	Rated current[A]	15
	Selection current (for 200V input)[A]	7
	Rated output[kW]	0.75
Regenerative option		Refer to "Regenerative option".

Outline dimension drawings [Unit : mm]



Environmental conditions

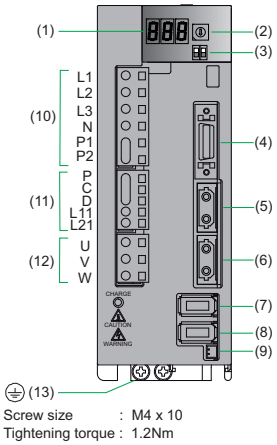
Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight);no corrosive gas, inflammable gas, oil mist, or dust
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s^2 (0.5G) / 49m/s^2 (5G)

Recommended wire

	Terminal name									
	CNP1 (L1, L2, L3, earth)		CNP2 (L11, L21)		CNP3 (U, V, W, earth)		CNP2 (P,C)		Magnetic brake	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	2	14	2	14	2	14	2	14	2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	2	14	2	14	2	14	2	14	2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	2	14	1.25	16	2	14	2	14	1.25	16

Servo drive unit

MDS-D-SVJ3-07NA



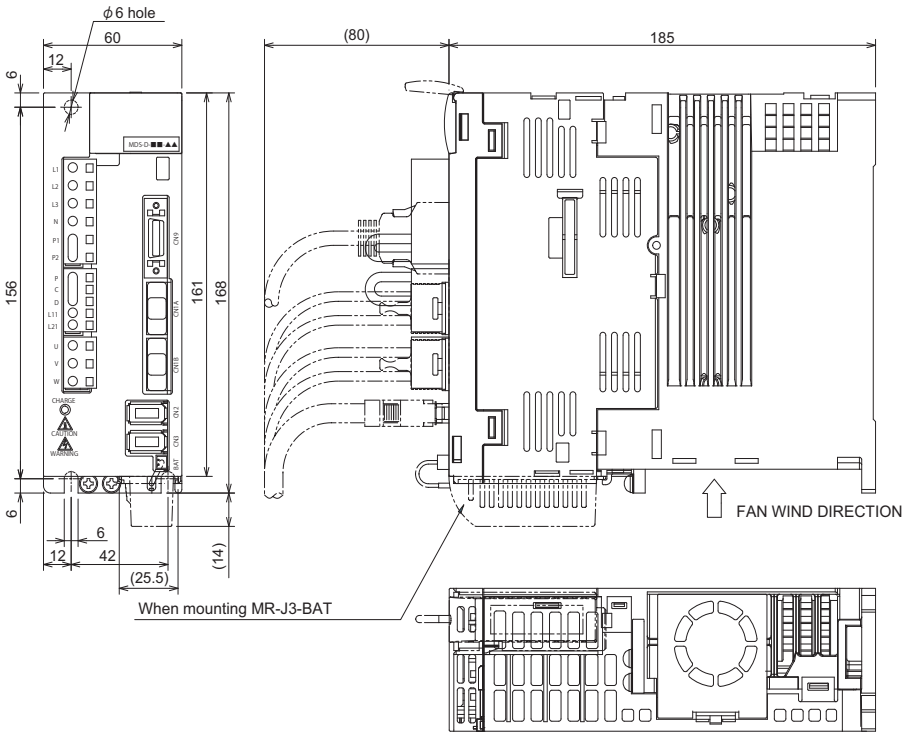
Screw size : M4 x 10
Tightening torque : 1.2Nm

No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SW1	Axis No. setting switch
(3)	SW2	For machine tool builder adjustment: Always OFF (facing bottom)
(4)	CN9	Connector for DIO/analog output
(5)	CN1A	NC or master axis optical communication connector
(6)	CN1B	Slave axis optical communication connector
(7)	CN2	Motor side encoder connection connector
(8)	CN3	Machine side encoder connection connector
(9)	BAT	Battery connection connector
(10)	CNP1	L1,L2,L3: Power supply input terminal (3-phase AC input) N: Test terminal for the manufacturer (Do not connect.) P1,P2: not used (short-circuit between the P1 and P2.)
(11)	CNP2	Regenerative resistor connection terminal Control power input terminal (single-phase AC input)
(12)	CNP3	Motor power output terminal (3-phase AC output)
(13)	PE	Grounding terminal

Specifications

Item		Specifications
Rated output[kW]		0.7
Power facility capacity[kVA]		1.3
Output	Rated voltage[V]	155AC
	Rated current[A]	5.8
Input	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±5% max
	Rated voltage(50Hz) [V]	200AC
	Rated voltage(60Hz) [V]	200 to 230AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Rated current[A]	3.8
Control power	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±5% max
	Voltage(50Hz)[V]	200AC
	Voltage(60Hz)[V]	200 to 230AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Max. Current[A]	0.2
	Max. Rush current[A]	30
	Max.Rush conductivity time[ms]	6
Maximum earth leakage current[mA]		2
Braking		Regenerative braking and dynamic brakes
	Dynamic brakes	Built-in
Main circuit method		Converter with resistor regeneration circuit
Heating value	Inside panel[W]	50
Cooling method		Forced air cooling
Mass[kg]		1.4
Selection example of contactor (option part)		S-T12-AC200V
	Free-air thermal current[A]	20
	Selection current (for 200V input)[A]	7
	Rated output[kW]	0.75
Selection example of circuit protector (option part)		NF30-SW3P-15A
	Rated current[A]	15
	Selection current (for 200V input)[A]	7
	Rated output[kW]	0.75
Regenerative option		Refer to "Regenerative option".

Outline dimension drawings [Unit : mm]



Environmental conditions

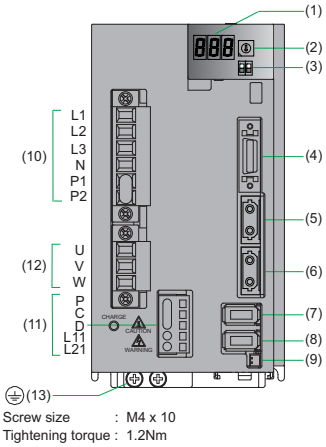
Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight);no corrosive gas, inflammable gas, oil mist, or dust
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s^2 (0.5G) / 49m/s^2 (5G)

Recommended wire

	Terminal name									
	CNP1 (L1, L2, L3, earth)		CNP2 (L11, L21)		CNP3 (U, V, W, earth)		CNP2 (P,C)		Magnetic brake	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	2	14	2	14	2	14	2	14	2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	2	14	2	14	2	14	2	14	2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	2	14	1.25	16	2	14	2	14	1.25	16

Servo drive unit

MDS-D-SVJ3-10



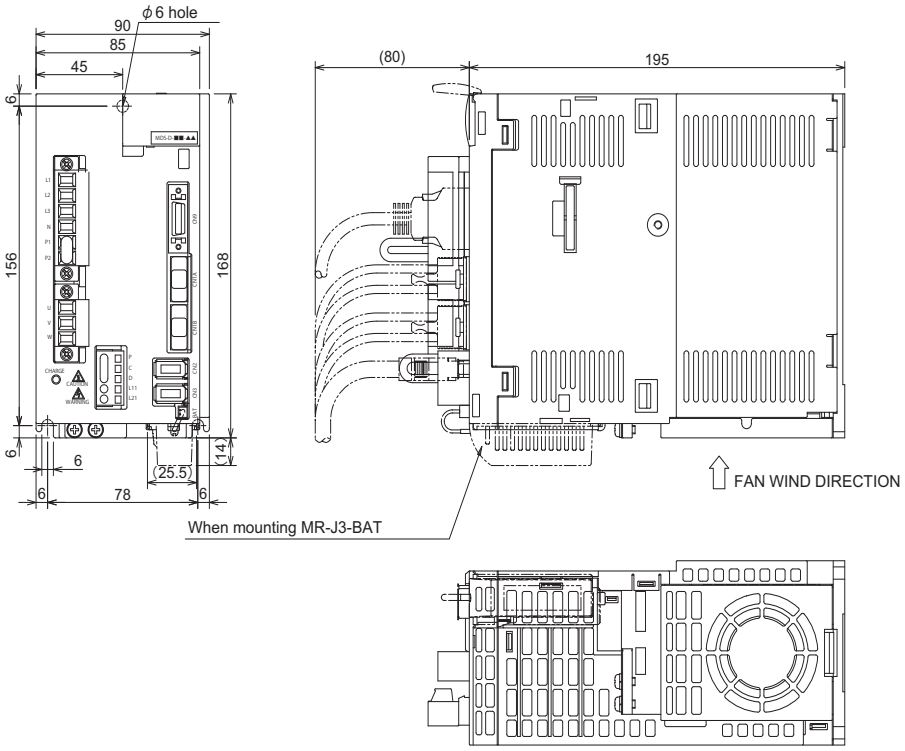
Screw size : M4 x 10
Tightening torque : 1.2Nm

No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SW1	Axis No. setting switch
(3)	SW2	For machine tool builder adjustment: Always OFF (facing bottom)
(4)	CN9	Connector for DIO/analog output
(5)	CN1A	NC or master axis optical communication connector
(6)	CN1B	Slave axis optical communication connector
(7)	CN2	Motor side encoder connection connector
(8)	CN3	Machine side encoder connection connector
(9)	BAT	Battery connection connector
(10)	CNP1	L1,L2,L3: Power supply input terminal (3-phase AC input) N: Test terminal for the manufacturer (Do not connect.) P1,P2: not used (short-circuit between the P1 and P2.)
(11)	CNP2	Regenerative resistor connection terminal Control power input terminal (single-phase AC input)
(12)	CNP3	Motor power output terminal (3-phase AC output)
(13)	PE	Grounding terminal

Specifications

Item		Specifications
Rated output[kW]		1.0
Power facility capacity[kVA]		1.7
Output	Rated voltage[V]	155AC
	Rated current[A]	11
Input	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±5% max
	Rated voltage(50Hz) [V]	200AC
	Rated voltage(60Hz) [V]	200 to 230AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Rated current[A]	5.0
Control power	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±5% max
	Voltage(50Hz)[V]	200AC
	Voltage(60Hz)[V]	200 to 230AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Max. Current[A]	0.2
	Max. Rush current[A]	30
	Max.Rush conductivity time[ms]	6
Maximum earth leakage current[mA]		2
Braking		Regenerative braking and dynamic brakes
	Dynamic brakes	Built-in
Main circuit method		Converter with resistor regeneration circuit
Heating value	Inside panel[W]	90
Cooling method		Forced air cooling
Mass[kg]		2.3
Selection example of contactor (option part)		S-T12-AC200V
	Free-air thermal current[A]	20
	Selection current (for 200V input)[A]	8
	Rated output[kW]	1.0
Selection example of circuit protector (option part)		NF30-SW3P-15A
	Rated current[A]	15
	Selection current (for 200V input)[A]	8
	Rated output[kW]	1.0
Regenerative option		Refer to "Regenerative option".

Outline dimension drawings [Unit : mm]



Environmental conditions

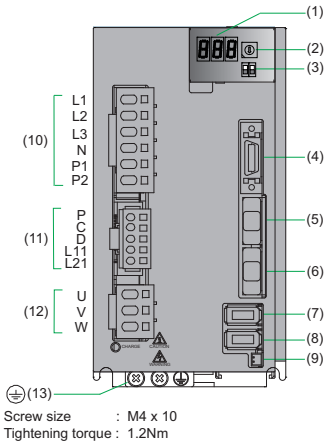
Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight);no corrosive gas, inflammable gas, oil mist, or dust
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s^2 (0.5G) / 49m/s^2 (5G)

Recommended wire

	Terminal name									
	CNP1 (L1, L2, L3, earth)		CNP2 (L11, L21)		CNP3 (U, V, W, earth)		CNP2 (P,C)		Magnetic brake	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	2	14	2	14	2	14	2	14	2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	2	14	2	14	2	14	2	14	2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	2	14	1.25	16	2	14	2	14	1.25	16

Servo drive unit

MDS-D-SVJ3-10NA

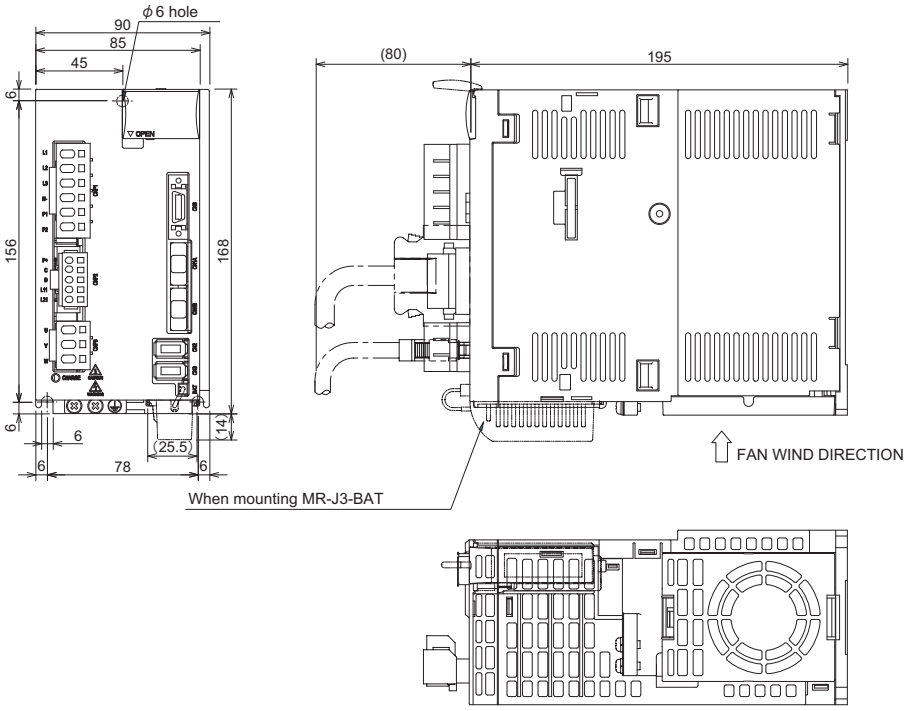


No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SW1	Axis No. setting switch
(3)	SW2	For machine tool builder adjustment: Always OFF (facing bottom)
(4)	CN9	Connector for DIO/analog output
(5)	CN1A	NC or master axis optical communication connector
(6)	CN1B	Slave axis optical communication connector
(7)	CN2	Motor side encoder connection connector
(8)	CN3	Machine side encoder connection connector
(9)	BAT	Battery connection connector
(10)	CNP1	L1,L2,L3: Power supply input terminal (3-phase AC input) N: Test terminal for the manufacturer (Do not connect.) P1,P2: not used (short-circuit between the P1 and P2.)
(11)	CNP2	Regenerative resistor connection terminal Control power input terminal (single-phase AC input)
(12)	CNP3	Motor power output terminal (3-phase AC output)
(13)	PE	Grounding terminal

Specifications

Item		Specifications
Rated output[kW]		1.0
Power facility capacity[kVA]		1.7
Output	Rated voltage[V]	155AC
	Rated current[A]	11
Input	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±5% max
	Rated voltage(50Hz) [V]	200AC
	Rated voltage(60Hz) [V]	200 to 230AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Rated current[A]	5.0
Control power	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±5% max
	Voltage(50Hz)[V]	200AC
	Voltage(60Hz)[V]	200 to 230AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Max. Current[A]	0.2
	Max. Rush current[A]	30
	Max.Rush conductivity time[ms]	6
Maximum earth leakage current[mA]		2
Braking		Regenerative braking and dynamic brakes
	Dynamic brakes	Built-in
Main circuit method		Converter with resistor regeneration circuit
Heating value	Inside panel[W]	90
Cooling method		Forced air cooling
Mass[kg]		2.3
Selection example of contactor (option part)		S-T12-AC200V
	Free-air thermal current[A]	20
	Selection current (for 200V input)[A]	8
	Rated output[kW]	1.0
Selection example of circuit protector (option part)		NF30-SW3P-15A
	Rated current[A]	15
	Selection current (for 200V input)[A]	8
	Rated output[kW]	1.0
Regenerative option		Refer to "Regenerative option".

Outline dimension drawings [Unit : mm]



Environmental conditions

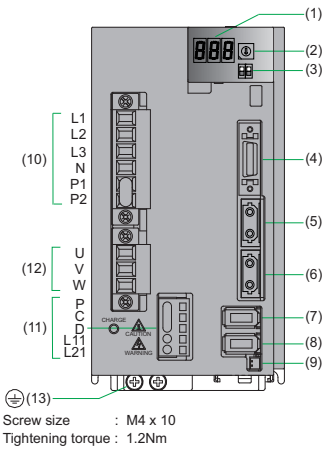
Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight);no corrosive gas, inflammable gas, oil mist, or dust
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s^2 (0.5G) / 49m/s^2 (5G)

Recommended wire

	Terminal name									
	CNP1 (L1, L2, L3, earth)		CNP2 (L11, L21)		CNP3 (U, V, W, earth)		CNP2 (P,C)		Magnetic brake	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	2	14	2	14	2	14	2	14	2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	2	14	2	14	2	14	2	14	2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	2	14	1.25	16	2	14	2	14	1.25	16

Servo drive unit

MDS-D-SVJ3-20



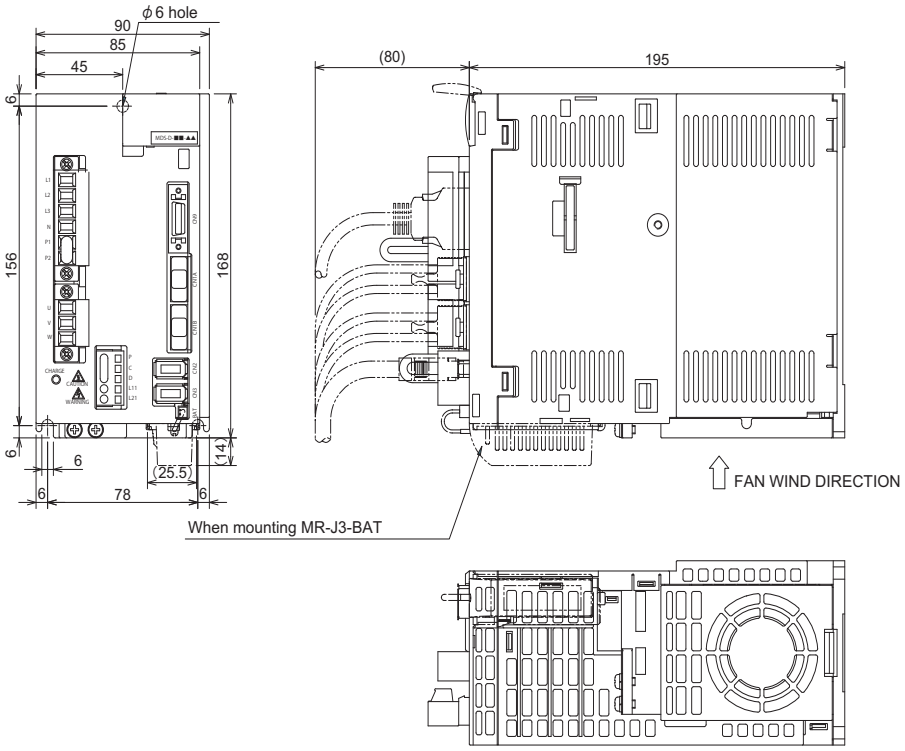
Screw size : M4 x 10
Tightening torque : 1.2Nm

No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SW1	Axis No. setting switch
(3)	SW2	For machine tool builder adjustment: Always OFF (facing bottom)
(4)	CN9	Connector for DIO/analog output
(5)	CN1A	NC or master axis optical communication connector
(6)	CN1B	Slave axis optical communication connector
(7)	CN2	Motor side encoder connection connector
(8)	CN3	Machine side encoder connection connector
(9)	BAT	Battery connection connector
(10)	CNP1	L1,L2,L3: Power supply input terminal (3-phase AC input) N: Test terminal for the manufacturer (Do not connect.) P1,P2: not used (short-circuit between the P1 and P2.)
(11)	CNP2	Regenerative resistor connection terminal Control power input terminal (single-phase AC input)
(12)	CNP3	Motor power output terminal (3-phase AC output)
(13)	PE	Grounding terminal

Specifications

Item		Specifications
Rated output[kW]		2.0
Power facility capacity[kVA]		3.5
Output	Rated voltage[V]	155AC
	Rated current[A]	16
Input	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±5% max
	Rated voltage(50Hz) [V]	200AC
	Rated voltage(60Hz) [V]	200 to 230AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Rated current[A]	10.5
Control power	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±5% max
	Voltage(50Hz)[V]	200AC
	Voltage(60Hz)[V]	200 to 230AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Max. Current[A]	0.2
	Max. Rush current[A]	30
	Max.Rush conductivity time[ms]	6
Maximum earth leakage current[mA]		2
Braking		Regenerative braking and dynamic brakes
	Dynamic brakes	Built-in
Main circuit method		Converter with resistor regeneration circuit
Heating value	Inside panel[W]	130
Cooling method		Forced air cooling
Mass[kg]		2.3
Selection example of contactor (option part)		S-T18-AC200V
	Free-air thermal current[A]	25
	Selection current (for 200V input)[A]	10
	Rated output[kW]	2.0
Selection example of circuit protector (option part)		NF30-SW3P-20A
	Rated current[A]	20
	Selection current (for 200V input)[A]	10
	Rated output[kW]	2.0
Regenerative option		Refer to "Regenerative option".

Outline dimension drawings [Unit : mm]



Environmental conditions

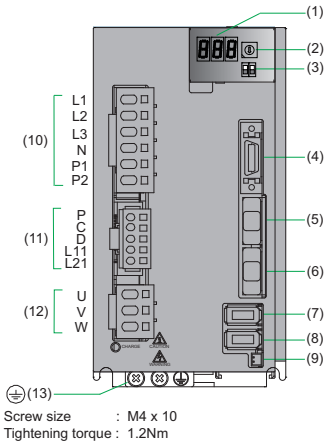
Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight);no corrosive gas, inflammable gas, oil mist, or dust
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s^2 (0.5G) / 49m/s^2 (5G)

Recommended wire

	Terminal name									
	CNP1 (L1, L2, L3, earth)		CNP2 (L11, L21)		CNP3 (U, V, W, earth)		CNP2 (P,C)		Magnetic brake	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	2	14	2	14	3.5	12	2	14	2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	2	14	2	14	3.5	12	2	14	2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	2	14	1.25	16	2	14	2	14	1.25	16

Servo drive unit

MDS-D-SVJ3-20NA



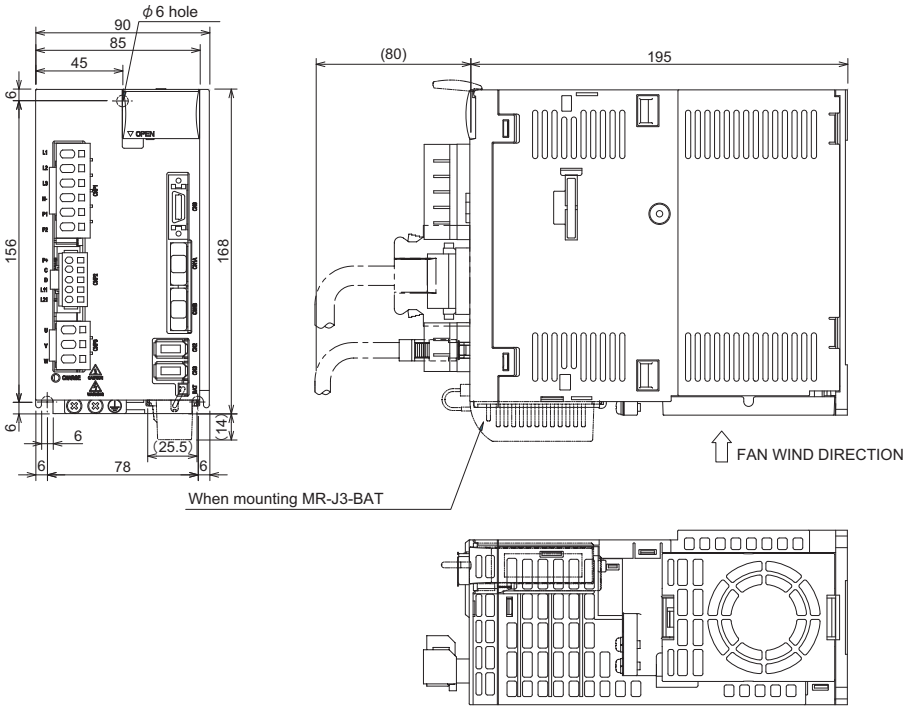
Screw size : M4 x 10
Tightening torque : 1.2Nm

No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SW1	Axis No. setting switch
(3)	SW2	For machine tool builder adjustment: Always OFF (facing bottom)
(4)	CN9	Connector for DIO/analog output
(5)	CN1A	NC or master axis optical communication connector
(6)	CN1B	Slave axis optical communication connector
(7)	CN2	Motor side encoder connection connector
(8)	CN3	Machine side encoder connection connector
(9)	BAT	Battery connection connector
(10)	CNP1	L1,L2,L3: Power supply input terminal (3-phase AC input) N: Test terminal for the manufacturer (Do not connect.) P1,P2: not used (short-circuit between the P1 and P2.)
(11)	CNP2	Regenerative resistor connection terminal Control power input terminal (single-phase AC input)
(12)	CNP3	Motor power output terminal (3-phase AC output)
(13)	PE	Grounding terminal

Specifications

Item		Specifications
Rated output[kW]		2.0
Power facility capacity[kVA]		3.5
Output	Rated voltage[V]	155AC
	Rated current[A]	16
Input	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±5% max
	Rated voltage(50Hz) [V]	200AC
	Rated voltage(60Hz) [V]	200 to 230AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Rated current[A]	10.5
Control power	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±5% max
	Voltage(50Hz)[V]	200AC
	Voltage(60Hz)[V]	200 to 230AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Max. Current[A]	0.2
	Max. Rush current[A]	30
	Max.Rush conductivity time[ms]	6
Maximum earth leakage current[mA]		2
Braking		Regenerative braking and dynamic brakes
	Dynamic brakes	Built-in
Main circuit method		Converter with resistor regeneration circuit
Heating value	Inside panel[W]	130
Cooling method		Forced air cooling
Mass[kg]		2.3
Selection example of contactor (option part)		S-T18-AC200V
	Free-air thermal current[A]	25
	Selection current (for 200V input)[A]	10
	Rated output[kW]	2.0
Selection example of circuit protector (option part)		NF30-SW3P-20A
	Rated current[A]	20
	Selection current (for 200V input)[A]	10
	Rated output[kW]	2.0
Regenerative option		Refer to "Regenerative option".

Outline dimension drawings [Unit : mm]



Environmental conditions

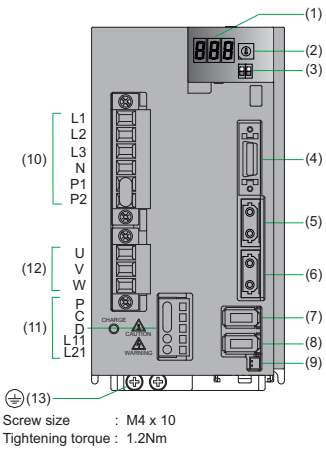
Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight);no corrosive gas, inflammable gas, oil mist, or dust
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s^2 (0.5G) / 49m/s^2 (5G)

Recommended wire

	Terminal name									
	CNP1 (L1, L2, L3, earth)		CNP2 (L11, L21)		CNP3 (U, V, W, earth)		CNP2 (P,C)		Magnetic brake	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	2	14	2	14	3.5	12	2	14	2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	2	14	2	14	3.5	12	2	14	2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	2	14	1.25	16	2	14	2	14	1.25	16

Servo drive unit

MDS-D-SVJ3-35



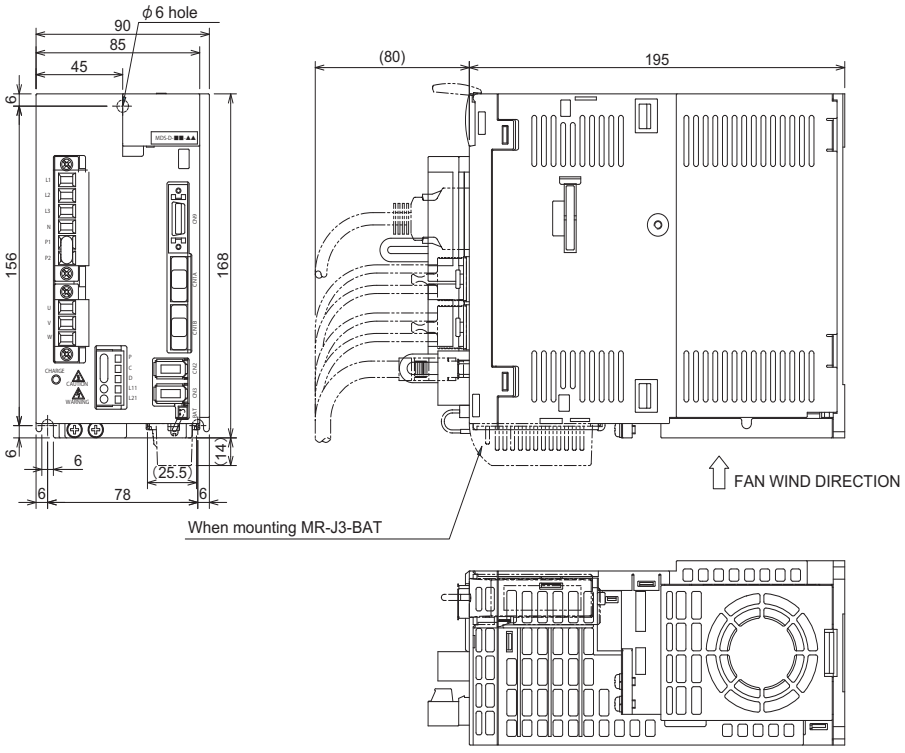
Screw size : M4 x 10
Tightening torque : 1.2Nm

No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SW1	Axis No. setting switch
(3)	SW2	For machine tool builder adjustment: Always OFF (facing bottom)
(4)	CN9	Connector for DIO/analog output
(5)	CN1A	NC or master axis optical communication connector
(6)	CN1B	Slave axis optical communication connector
(7)	CN2	Motor side encoder connection connector
(8)	CN3	Machine side encoder connection connector
(9)	BAT	Battery connection connector
(10)	CNP1	L1,L2,L3: Power supply input terminal (3-phase AC input) N: Test terminal for the manufacturer (Do not connect.) P1,P2: not used (short-circuit between the P1 and P2.)
(11)	CNP2	Regenerative resistor connection terminal Control power input terminal (single-phase AC input)
(12)	CNP3	Motor power output terminal (3-phase AC output)
(13)	PE	Grounding terminal

Specifications

Item		Specifications
Rated output[kW]		3.5
Power facility capacity[kVA]		5.5
Output	Rated voltage[V]	155AC
	Rated current[A]	22
Input	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±5% max
	Rated voltage(50Hz) [V]	200AC
	Rated voltage(60Hz) [V]	200 to 230AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Rated current[A]	16
Control power	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±5% max
	Voltage(50Hz)[V]	200AC
	Voltage(60Hz)[V]	200 to 230AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Max. Current[A]	0.2
	Max. Rush current[A]	30
	Max.Rush conductivity time[ms]	6
Maximum earth leakage current[mA]		2
Braking		Regenerative braking and dynamic brakes
	Dynamic brakes	Built-in
Main circuit method		Converter with resistor regeneration circuit
Heating value	Inside panel[W]	195
Cooling method		Forced air cooling
Mass[kg]		2.3
Selection example of contactor (option part)		S-T20-AC200V
	Free-air thermal current[A]	32
	Selection current (for 200V input)[A]	15
	Rated output[kW]	3.5
Selection example of circuit protector (option part)		NF30-SW3P-30A
	Rated current[A]	30
	Selection current (for 200V input)[A]	15
	Rated output[kW]	3.5
Regenerative option		Refer to "Regenerative option".

Outline dimension drawings [Unit : mm]



Environmental conditions

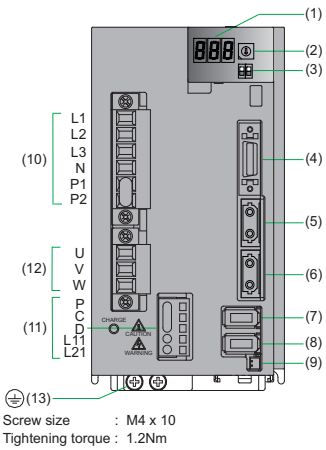
Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight);no corrosive gas, inflammable gas, oil mist, or dust
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s^2 (0.5G) / 49m/s^2 (5G)

Recommended wire

	Terminal name									
	CNP1 (L1, L2, L3, earth)		CNP2 (L11, L21)		CNP3 (U, V, W, earth)		CNP2 (P,C)		Magnetic brake	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	3.5	12	2	14	5.5	10	2	14	2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	3.5	12	2	14	5.5	10	2	14	2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	2	14	1.25	16	3.5	12	2	14	1.25	16

Servo drive unit

MDS-D-SVJ3-35NA



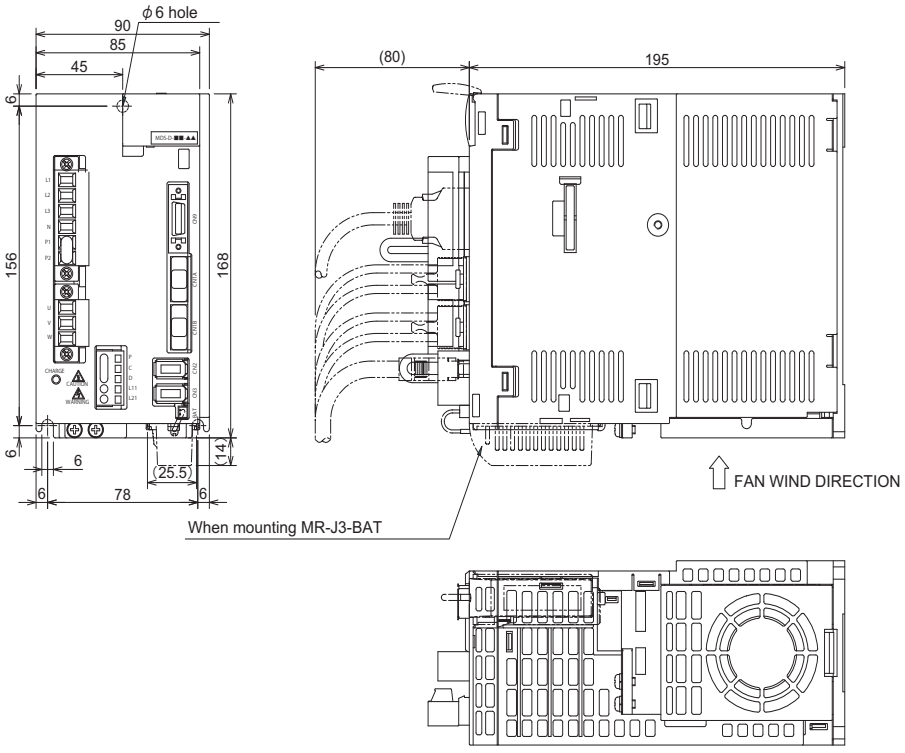
Screw size : M4 x 10
Tightening torque : 1.2Nm

No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SW1	Axis No. setting switch
(3)	SW2	For machine tool builder adjustment: Always OFF (facing bottom)
(4)	CN9	Connector for DIO/analog output
(5)	CN1A	NC or master axis optical communication connector
(6)	CN1B	Slave axis optical communication connector
(7)	CN2	Motor side encoder connection connector
(8)	CN3	Machine side encoder connection connector
(9)	BAT	Battery connection connector
(10)	CNP1	L1,L2,L3: Power supply input terminal (3-phase AC input) N: Test terminal for the manufacturer (Do not connect.) P1,P2: not used (short-circuit between the P1 and P2.)
(11)	CNP2	Regenerative resistor connection terminal Control power input terminal (single-phase AC input)
(12)	CNP3	Motor power output terminal (3-phase AC output)
(13)	PE	Grounding terminal

Specifications

Item		Specifications
Rated output[kW]		3.5
Power facility capacity[kVA]		5.5
Output	Rated voltage[V]	155AC
	Rated current[A]	22
Input	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±5% max
	Rated voltage(50Hz) [V]	200AC
	Rated voltage(60Hz) [V]	200 to 230AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Rated current[A]	16
Control power	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±5% max
	Voltage(50Hz)[V]	200AC
	Voltage(60Hz)[V]	200 to 230AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Max. Current[A]	0.2
	Max. Rush current[A]	30
	Max.Rush conductivity time[ms]	6
Maximum earth leakage current[mA]		2
Braking		Regenerative braking and dynamic brakes
	Dynamic brakes	Built-in
Main circuit method		Converter with resistor regeneration circuit
Heating value	Inside panel[W]	195
Cooling method		Forced air cooling
Mass[kg]		2.3
Selection example of contactor (option part)		S-T20-AC200V
	Free-air thermal current[A]	32
	Selection current (for 200V input)[A]	15
	Rated output[kW]	3.5
Selection example of circuit protector (option part)		NF30-SW3P-30A
	Rated current[A]	30
	Selection current (for 200V input)[A]	15
	Rated output[kW]	3.5
Regenerative option		Refer to "Regenerative option".

Outline dimension drawings [Unit : mm]



Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight);no corrosive gas, inflammable gas, oil mist, or dust
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s^2 (0.5G) / 49m/s^2 (5G)

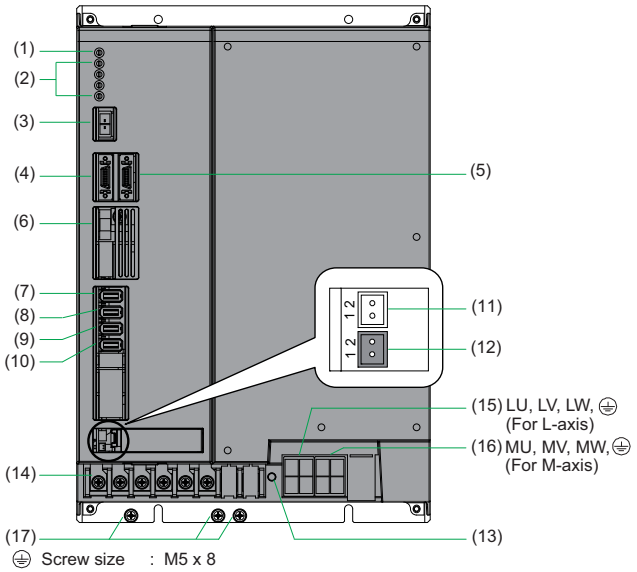
Recommended wire

	Terminal name									
	CNP1 (L1, L2, L3, earth)		CNP2 (L11, L21)		CNP3 (U, V, W, earth)		CNP2 (P,C)		Magnetic brake	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	3.5	12	2	14	5.5	10	2	14	2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	3.5	12	2	14	5.5	10	2	14	2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	2	14	1.25	16	3.5	12	2	14	1.25	16

Multi axis integrated drive unit

Multi axis integrated drive unit

MDS-DM-SPV2-10080



⏚ Screw size : M5 x 8
Tightening torque : 2.0Nm

No.	Name	Description
(1)	POWER	24V power supply status indication LED
(2)	SP1,SP2 SV1,SV2	Unit status indication LED
(3)	CN22	Control power input connector (24VDC input)
(4)	CN9A	Connector for DIO/analog output (spindle)
(5)	CN9B	Connector for DIO/analog output (servo)
(6)	OPT1A	NC optical communication connector
(7)	CN2SP	Spindle motor side encoder connection connector 5V power supply capacity: 0.35A
(8)	CN3SP	Spindle side encoder connection connector 5V power supply capacity: 0.35A
(9)	CN2L	Servo motor side encoder connection connector (L-axis) 5V power supply capacity: 0.35A
(10)	CN2M	Servo motor side encoder connection connector (M-axis) 5V power supply capacity: 0.35A
(11)	BTA	For connecting converged battery unit
(12)	BT1	For connecting battery built-in drive unit ER6V-C119B
(13)	CHARGE LAMP	Converter voltage output charge-discharge status indication LED
(14)	TE1	L1,L2,L3: Power supply input terminal (3-phase AC output) U,V,W: Motor power output terminal (spindle, 3-phase AC output) P+,N-: DC output for unit stopped caused by power failure *Do not wiring during unused state.
(15)	CN31L	Motor power supply output connector (L-axis, 3-phase AC output)
(16)	CN31M	Motor power supply output connector (M-axis, 3-phase AC output)
(17)	PE	Grounding terminal (also including grounding of the spindle motor)

Specifications

Item		Specifications
Nominal maximum current (at peak of spindle)[A]		100
Nominal maximum current (at peak of servo)[A]		80x2
Output	Rated voltage[V]	155AC
	Rated current [servo][A]	15.8x2
	Rated current [spindle][A]	26
Input	Rated voltage (50Hz)[V]	200AC
	Rated voltage (60Hz)[V]	200 to 230AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Rated current[A]	33
Control power	Voltage[V]	24DC
	Tolerable voltage fluctuation[%]	+10%, -10%
	Max. current[A]	4
	Max. rush current[A]	10
	Max. rush conductivity time[ms]	100
Max. earth leakage current[mA]		9
Braking [servo]		Regenerative braking and dynamic brakes
	Dynamic brakes	Built-in
Braking [spindle]		Regenerative braking
Heating value	Inside panel[W]	120
	Outside panel[W]	510
Cooling method		Forced air cooling
Mass[kg]		14.5

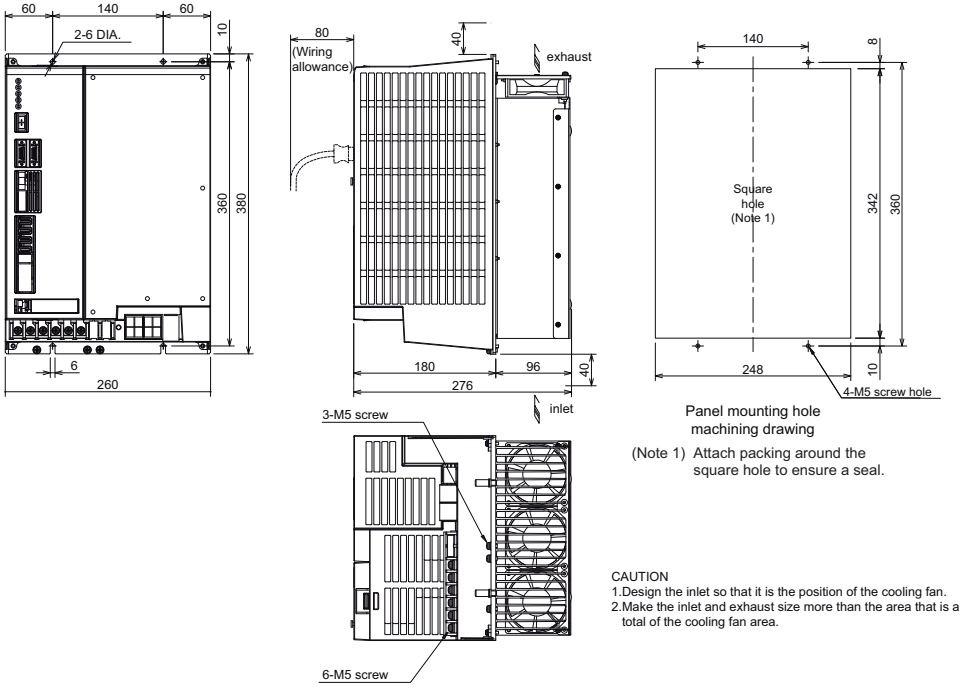
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s^2 (0.5G) / 49m/s^2 (5G)

Recommended wire

	Terminal name							
	TE1 (L1, L2, L3)		TE1 (U, V, W)		CN31 L/M/S (U,V,W,PE)		CN22 (VDD, SG)	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	30	3	5.5	10	3.5	12	2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	22	4	5.5	10	3.5	12	2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	14	6	3.5	12	2	14	1.25 to 2	16 to 14

Outline dimension drawings [Unit : mm]



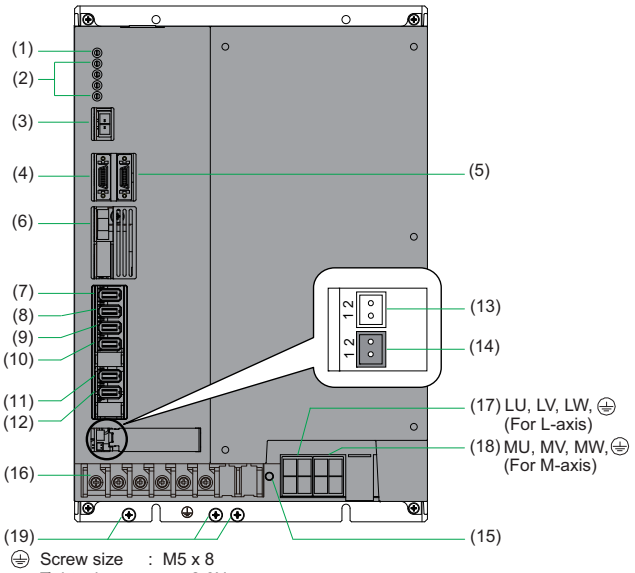
Panel mounting hole machining drawing

(Note 1) Attach packing around the square hole to ensure a seal.

CAUTION
1.Design the inlet so that it is the position of the cooling fan.
2.Make the inlet and exhaust size more than the area that is a total of the cooling fan area.

Multi axis integrated drive unit

MDS-DM-SPV2F-10080



⏚ Screw size : M5 x 8
Tightening torque : 2.0Nm

No.	Name	Description
(1)	POWER	24V power supply status indication LED
(2)	SP1,SP2 SV1,SV2	Unit status indication LED
(3)	CN22	Control power input connector (24VDC input)
(4)	CN9A	Connector for DIO/analog output (spindle)
(5)	CN9B	Connector for DIO/analog output (servo)
(6)	OPT1A	NC optical communication connector
(7)	CN2SP	Spindle motor side encoder connection connector 5V power supply capacity: 0.35A
(8)	CN3SP	Spindle side encoder connection connector 5V power supply capacity: 0.35A
(9)	CN2L	Servo motor side encoder connection connector (L-axis) 5V power supply capacity: 0.35A
(10)	CN2M	Servo motor side encoder connection connector (M-axis) 5V power supply capacity: 0.35A
(11)	CN3L	MDS-EX-SR connection connector (L-axis:LA)
(12)	CN3M	MDS-EX-SR connection connector (M-axis:MA)
(13)	BTA	For connecting converged battery unit
(14)	BT1	For connecting battery built-in drive unit ER6V-C119B
(15)	CHARGE LAMP	Converter voltage output charge-discharge status indication LED
(16)	TE1	L1,L2,L3: Power supply input terminal (3-phase AC output) U,V,W: Motor power output terminal (spindle, 3-phase AC output) P+,N-: DC output for unit stopped caused by power failure *Do not wiring during unused state.
(17)	CN31L	Motor power supply output connector (L-axis, 3-phase AC output)
(18)	CN31M	Motor power supply output connector (M-axis, 3-phase AC output)
(19)	PE	Grounding terminal (also including grounding of the spindle motor)

Specifications

Item		Specifications
Nominal maximum current (at peak of spindle)[A]		100
Nominal maximum current (at peak of servo)[A]		80x2
Output	Rated voltage[V]	155AC
	Rated current [servo][A]	15.8x2
	Rated current [spindle][A]	26
Input	Rated voltage (50Hz)[V]	200AC
	Rated voltage (60Hz)[V]	200 to 230AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Rated current[A]	33
Control power	Voltage[V]	24DC
	Tolerable voltage fluctuation[%]	+10%, -10%
	Max. current[A]	4
	Max. rush current[A]	10
	Max. rush conductivity time[ms]	100
Max. earth leakage current[mA]		9
Braking [servo]		Regenerative braking and dynamic brakes
	Dynamic brakes	Built-in
Braking [spindle]		Regenerative braking
Heating value	Inside panel[W]	120
	Outside panel[W]	510
Cooling method		Forced air cooling
Mass[kg]		14.5

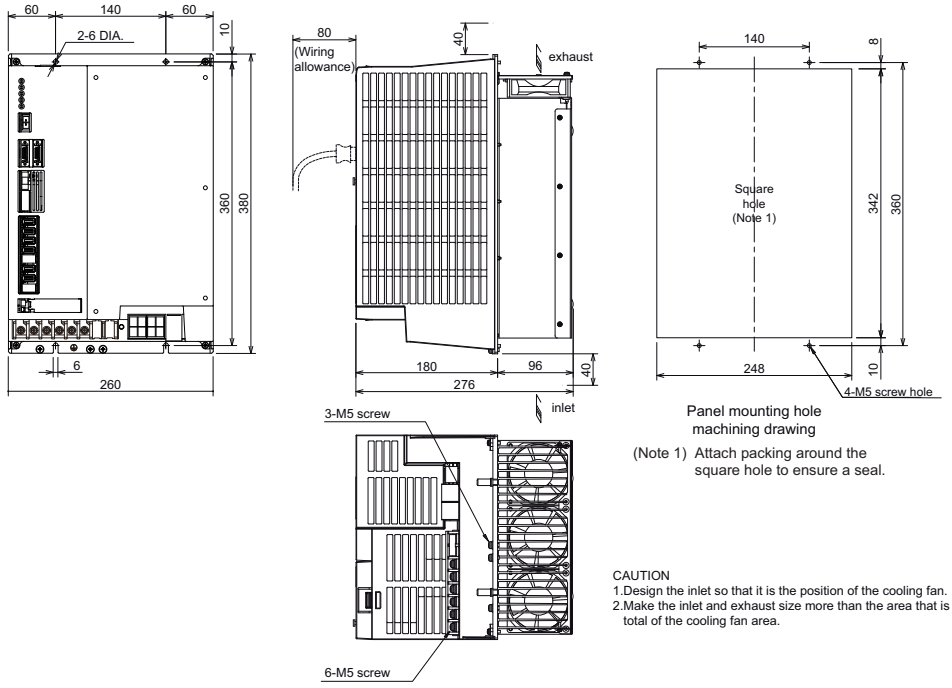
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s^2 (0.5G) / 49m/s^2 (5G)

Recommended wire

	Terminal name							
	TE1 (L1, L2, L3)		TE1 (U, V, W)		CN31 L/M/S (U,V,W,PE)		CN22 (VDD, SG)	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	30	3	5.5	10	3.5	12	2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	22	4	5.5	10	3.5	12	2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	14	6	3.5	12	2	14	1.25 to 2	16 to 14

Outline dimension drawings [Unit : mm]



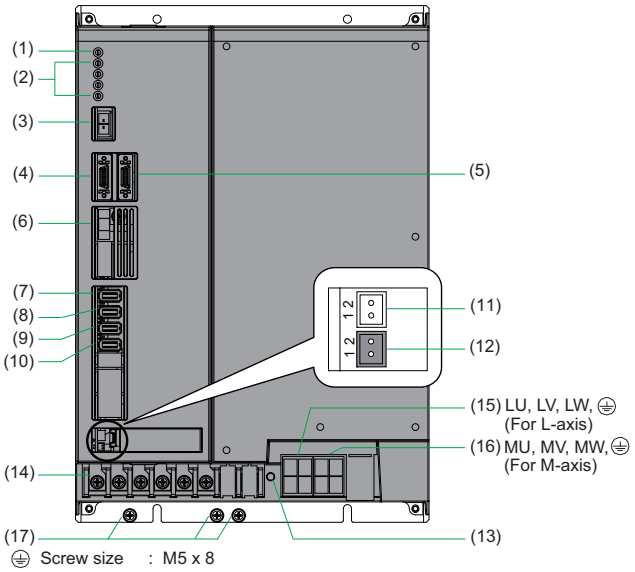
Panel mounting hole machining drawing

(Note 1) Attach packing around the square hole to ensure a seal.

CAUTION
1.Design the inlet so that it is the position of the cooling fan.
2.Make the inlet and exhaust size more than the area that is a total of the cooling fan area.

Multi axis integrated drive unit

MDS-DM-SPV2-16080



No.	Name	Description
(1)	POWER	24V power supply status indication LED
(2)	SP1,SP2 SV1,SV2	Unit status indication LED
(3)	CN22	Control power input connector (24VDC input)
(4)	CN9A	Connector for DIO/analog output (spindle)
(5)	CN9B	Connector for DIO/analog output (servo)
(6)	OPT1A	NC optical communication connector
(7)	CN2SP	Spindle motor side encoder connection connector 5V power supply capacity: 0.35A
(8)	CN3SP	Spindle side encoder connection connector 5V power supply capacity: 0.35A
(9)	CN2L	Servo motor side encoder connection connector (L-axis) 5V power supply capacity: 0.35A
(10)	CN2M	Servo motor side encoder connection connector (M-axis) 5V power supply capacity: 0.35A
(11)	BTA	For connecting converged battery unit
(12)	BT1	For connecting battery built-in drive unit ER6V-C119B
(13)	CHARGE LAMP	Converter voltage output charge-discharge status indication LED
(14)	TE1	L1,L2,L3: Power supply input terminal (3-phase AC output) U,V,W: Motor power output terminal (spindle, 3-phase AC output) P+,N-: DC output for unit stopped caused by power failure *Do not wiring during unused state.
(15)	CN31L	Motor power supply output connector (L-axis, 3-phase AC output)
(16)	CN31M	Motor power supply output connector (M-axis, 3-phase AC output)
(17)	PE	Grounding terminal (also including grounding of the spindle motor)

Specifications

Item		Specifications
Nominal maximum current (at peak of spindle)[A]		160
Nominal maximum current (at peak of servo)[A]		80x2
Output	Rated voltage[V]	155AC
	Rated current [servo][A]	15.8x2
	Rated current [spindle][A]	37
Input	Rated voltage (50Hz)[V]	200AC
	Rated voltage (60Hz)[V]	200 to 230AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Rated current[A]	43
Control power	Voltage[V]	24DC
	Tolerable voltage fluctuation[%]	+10%, -10%
	Max. current[A]	4
	Max. rush current[A]	10
	Max. rush conductivity time[ms]	100
Max. earth leakage current[mA]		9
Braking [servo]		Regenerative braking and dynamic brakes
	Dynamic brakes	Built-in
Braking [spindle]		Regenerative braking
Heating value	Inside panel[W]	130
	Outside panel[W]	570
Cooling method		Forced air cooling
Mass[kg]		14.5

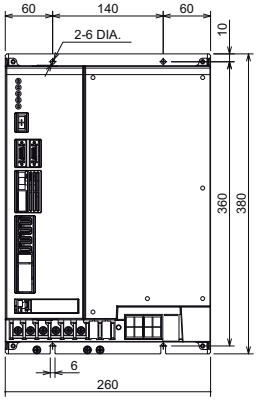
Environmental conditions

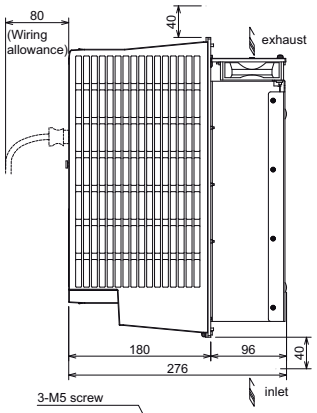
Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s^2 (0.5G) / 49m/s^2 (5G)

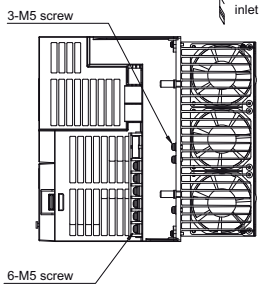
Recommended wire

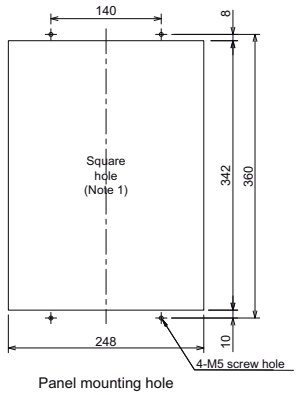
	Terminal name							
	TE1 (L1, L2, L3)		TE1 (U, V, W)		CN31 L/M/S (U,V,W,PE)		CN22 (VDD, SG)	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	30	3	14	6	3.5	12	2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	22	4	8	8	3.5	12	2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	14	6	5.5	10	2	14	1.25 to 2	16 to 14

Outline dimension drawings [Unit : mm]









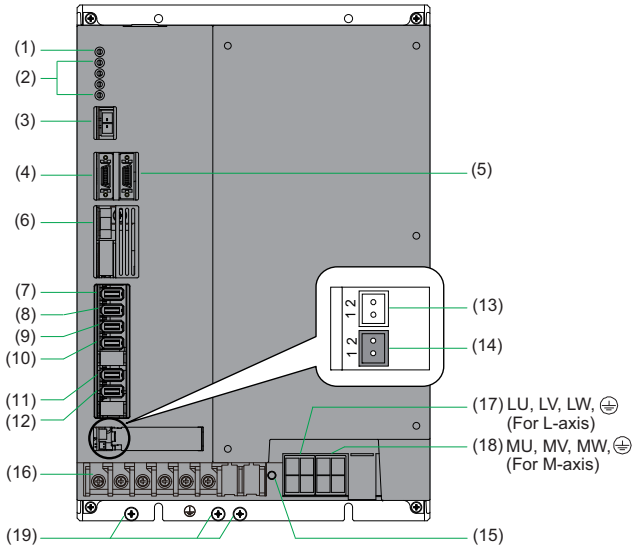
Panel mounting hole machining drawing

(Note 1) Attach packing around the square hole to ensure a seal.

CAUTION
1.Design the inlet so that it is the position of the cooling fan.
2.Make the inlet and exhaust size more than the area that is a total of the cooling fan area.

Multi axis integrated drive unit

MDS-DM-SPV2F-16080



⏚ Screw size : M5 x 8
Tightening torque : 2.0Nm

No.	Name	Description
(1)	POWER	24V power supply status indication LED
(2)	SP1,SP2 SV1,SV2	Unit status indication LED
(3)	CN22	Control power input connector (24VDC input)
(4)	CN9A	Connector for DIO/analog output (spindle)
(5)	CN9B	Connector for DIO/analog output (servo)
(6)	OPT1A	NC optical communication connector
(7)	CN2SP	Spindle motor side encoder connection connector 5V power supply capacity: 0.35A
(8)	CN3SP	Spindle side encoder connection connector 5V power supply capacity: 0.35A
(9)	CN2L	Servo motor side encoder connection connector (L-axis) 5V power supply capacity: 0.35A
(10)	CN2M	Servo motor side encoder connection connector (M-axis) 5V power supply capacity: 0.35A
(11)	CN3L	MDS-EX-SR connection connector (L-axis:LA)
(12)	CN3M	MDS-EX-SR connection connector (M-axis:MA)
(13)	BTA	For connecting converged battery unit
(14)	BT1	For connecting battery built-in drive unit ER6V-C119B
(15)	CHARGE LAMP	Converter voltage output charge-discharge status indication LED
(16)	TE1	L1,L2,L3: Power supply input terminal (3-phase AC output) U,V,W: Motor power output terminal (spindle, 3-phase AC output) P+,N-: DC output for unit stopped caused by power failure *Do not wiring during unused state.
(17)	CN31L	Motor power supply output connector (L-axis, 3-phase AC output)
(18)	CN31M	Motor power supply output connector (M-axis, 3-phase AC output)
(19)	PE	Grounding terminal (also including grounding of the spindle motor)

Specifications

Item		Specifications
Nominal maximum current (at peak of spindle)[A]		160
Nominal maximum current (at peak of servo)[A]		80x2
Output	Rated voltage[V]	155AC
	Rated current [servo][A]	15.8x2
	Rated current [spindle][A]	37
Input	Rated voltage (50Hz)[V]	200AC
	Rated voltage (60Hz)[V]	200 to 230AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Rated current[A]	43
Control power	Voltage[V]	24DC
	Tolerable voltage fluctuation[%]	+10%, -10%
	Max. current[A]	4
	Max. rush current[A]	10
	Max. rush conductivity time[ms]	100
Max. earth leakage current[mA]		9
Braking [servo]		Regenerative braking and dynamic brakes
	Dynamic brakes	Built-in
Braking [spindle]		Regenerative braking
Heating value	Inside panel[W]	130
	Outside panel[W]	570
Cooling method		Forced air cooling
Mass[kg]		14.5

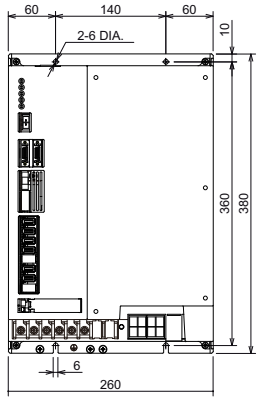
Environmental conditions

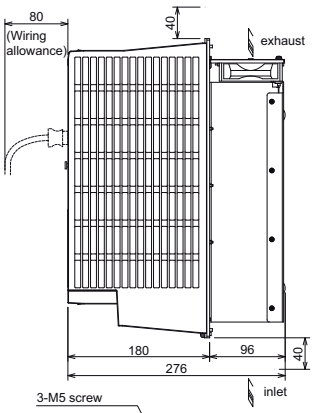
Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s^2 (0.5G) / 49m/s^2 (5G)

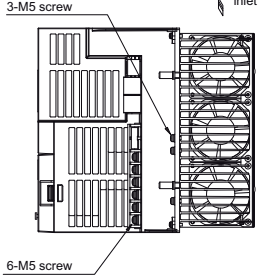
Recommended wire

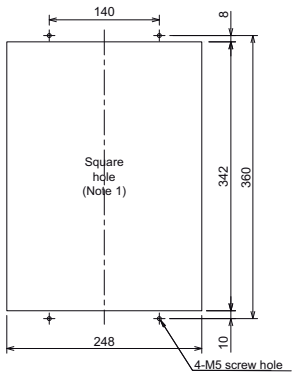
	Terminal name							
	TE1 (L1, L2, L3)		TE1 (U, V, W)		CN31 L/M/S (U,V,W,PE)		CN22 (VDD, SG)	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	30	3	14	6	3.5	12	2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	22	4	8	8	3.5	12	2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	14	6	5.5	10	2	14	1.25 to 2	16 to 14

Outline dimension drawings [Unit : mm]









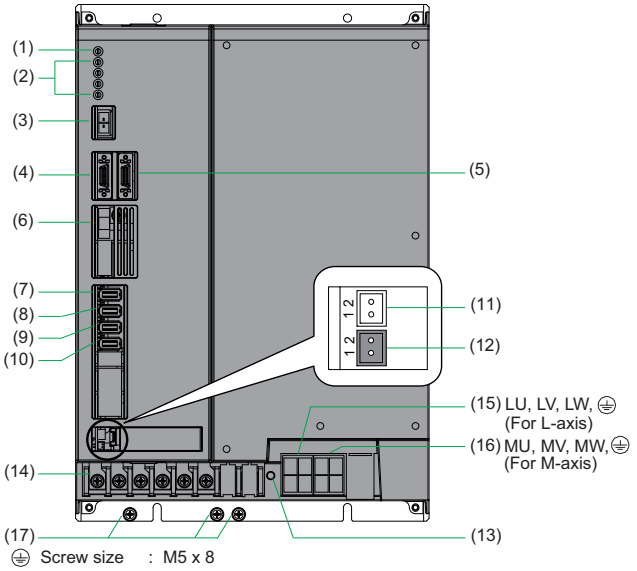
Panel mounting hole machining drawing

(Note 1) Attach packing around the square hole to ensure a seal.

CAUTION
1.Design the inlet so that it is the position of the cooling fan.
2.Make the inlet and exhaust size more than the area that is a total of the cooling fan area.

Multi axis integrated drive unit

MDS-DM-SPV2-20080



Screw size : M5 x 8
Tightening torque : 2.0Nm

No.	Name	Description
(1)	POWER	24V power supply status indication LED
(2)	SP1,SP2 SV1,SV2	Unit status indication LED
(3)	CN22	Control power input connector (24VDC input)
(4)	CN9A	Connector for DIO/analog output (spindle)
(5)	CN9B	Connector for DIO/analog output (servo)
(6)	OPT1A	NC optical communication connector
(7)	CN2SP	Spindle motor side encoder connection connector 5V power supply capacity: 0.35A
(8)	CN3SP	Spindle side encoder connection connector 5V power supply capacity: 0.35A
(9)	CN2L	Servo motor side encoder connection connector (L-axis) 5V power supply capacity: 0.35A
(10)	CN2M	Servo motor side encoder connection connector (M-axis) 5V power supply capacity: 0.35A
(11)	BTA	For connecting converged battery unit
(12)	BT1	For connecting battery built-in drive unit ER6V-C119B
(13)	CHARGE LAMP	Converter voltage output charge-discharge status indication LED
(14)	TE1	L1,L2,L3: Power supply input terminal (3-phase AC output) U,V,W: Motor power output terminal (spindle, 3-phase AC output) P+,N-: DC output for unit stopped caused by power failure *Do not wiring during unused state.
(15)	CN31L	Motor power supply output connector (L-axis, 3-phase AC output)
(16)	CN31M	Motor power supply output connector (M-axis, 3-phase AC output)
(17)	PE	Grounding terminal (also including grounding of the spindle motor)

Specifications

Item		Specifications
Nominal maximum current (at peak of spindle)[A]		200
Nominal maximum current (at peak of servo)[A]		80x2
Output	Rated voltage[V]	155AC
	Rated current [servo][A]	15.8x2
	Rated current [spindle][A]	67
Input	Rated voltage (50Hz)[V]	200AC
	Rated voltage (60Hz)[V]	200 to 230AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Rated current[A]	55
Control power	Voltage[V]	24DC
	Tolerable voltage fluctuation[%]	+10%, -10%
	Max. current[A]	4
	Max. rush current[A]	10
	Max. rush conductivity time[ms]	100
Max. earth leakage current[mA]		9
Braking [servo]		Regenerative braking and dynamic brakes
	Dynamic brakes	Built-in
Braking [spindle]		Regenerative braking
Heating value	Inside panel[W]	155
	Outside panel[W]	740
Cooling method		Forced air cooling
Mass[kg]		14.5

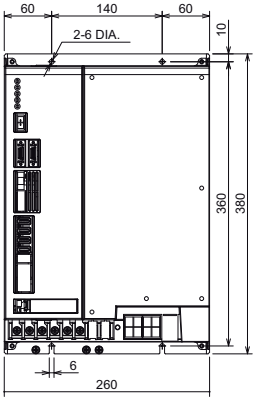
Environmental conditions

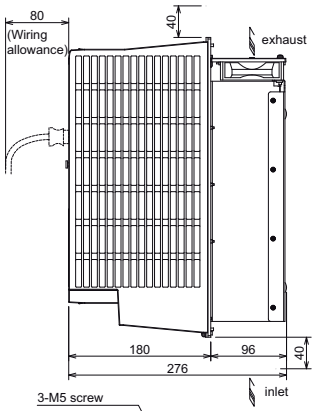
Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s^2 (0.5G) / 49m/s^2 (5G)

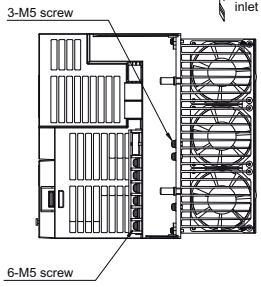
Recommended wire

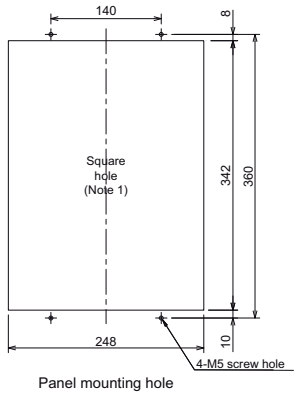
	Terminal name							
	TE1 (L1, L2, L3)		TE1 (U, V, W)		CN31 L/M/S (U,V,W,PE)		CN22 (VDD, SG)	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	30	3	22	4	3.5	12	2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	22	4	22	4	3.5	12	2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	14	6	14	6	2	14	1.25 to 2	16 to 14

Outline dimension drawings [Unit : mm]









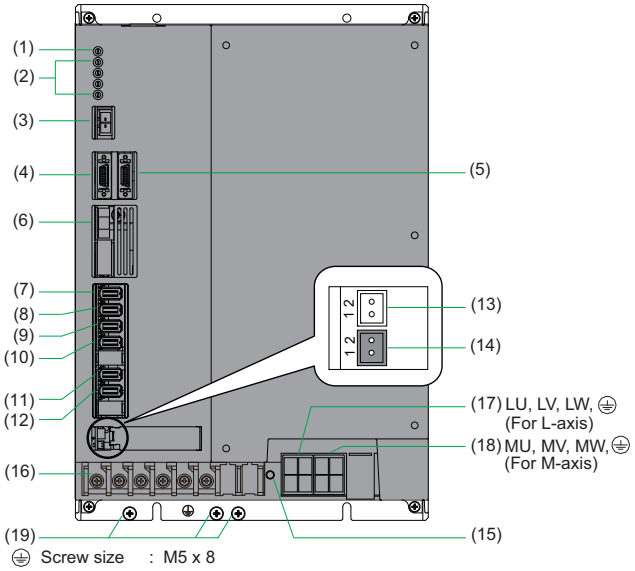
Panel mounting hole machining drawing

(Note 1) Attach packing around the square hole to ensure a seal.

CAUTION
1.Design the inlet so that it is the position of the cooling fan.
2.Make the inlet and exhaust size more than the area that is a total of the cooling fan area.

Multi axis integrated drive unit

MDS-DM-SPV2F-20080



⏚ Screw size : M5 x 8
Tightening torque : 2.0Nm

No.	Name	Description
(1)	POWER	24V power supply status indication LED
(2)	SP1,SP2 SV1,SV2	Unit status indication LED
(3)	CN22	Control power input connector (24VDC input)
(4)	CN9A	Connector for DIO/analog output (spindle)
(5)	CN9B	Connector for DIO/analog output (servo)
(6)	OPT1A	NC optical communication connector
(7)	CN2SP	Spindle motor side encoder connection connector 5V power supply capacity: 0.35A
(8)	CN3SP	Spindle side encoder connection connector 5V power supply capacity: 0.35A
(9)	CN2L	Servo motor side encoder connection connector (L-axis) 5V power supply capacity: 0.35A
(10)	CN2M	Servo motor side encoder connection connector (M-axis) 5V power supply capacity: 0.35A
(11)	CN3L	MDS-EX-SR connection connector (L-axis:LA)
(12)	CN3M	MDS-EX-SR connection connector (M-axis:MA)
(13)	BTA	For connecting converged battery unit
(14)	BT1	For connecting battery built-in drive unit ER6V-C119B
(15)	CHARGE LAMP	Converter voltage output charge-discharge status indication LED
(16)	TE1	L1,L2,L3: Power supply input terminal (3-phase AC output) U,V,W: Motor power output terminal (spindle, 3-phase AC output) P+,N-: DC output for unit stopped caused by power failure *Do not wiring during unused state.
(17)	CN31L	Motor power supply output connector (L-axis, 3-phase AC output)
(18)	CN31M	Motor power supply output connector (M-axis, 3-phase AC output)
(19)	PE	Grounding terminal (also including grounding of the spindle motor)

Specifications

Item		Specifications
Nominal maximum current (at peak of spindle)[A]		200
Nominal maximum current (at peak of servo)[A]		80x2
Output	Rated voltage[V]	155AC
	Rated current [servo][A]	15.8x2
	Rated current [spindle][A]	67
Input	Rated voltage (50Hz)[V]	200AC
	Rated voltage (60Hz)[V]	200 to 230AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Rated current[A]	55
Control power	Voltage[V]	24DC
	Tolerable voltage fluctuation[%]	+10%, -10%
	Max. current[A]	4
	Max. rush current[A]	10
	Max. rush conductivity time[ms]	100
Max. earth leakage current[mA]		9
Braking [servo]		Regenerative braking and dynamic brakes
	Dynamic brakes	Built-in
Braking [spindle]		Regenerative braking
Heating value	Inside panel[W]	155
	Outside panel[W]	740
Cooling method		Forced air cooling
Mass[kg]		14.5

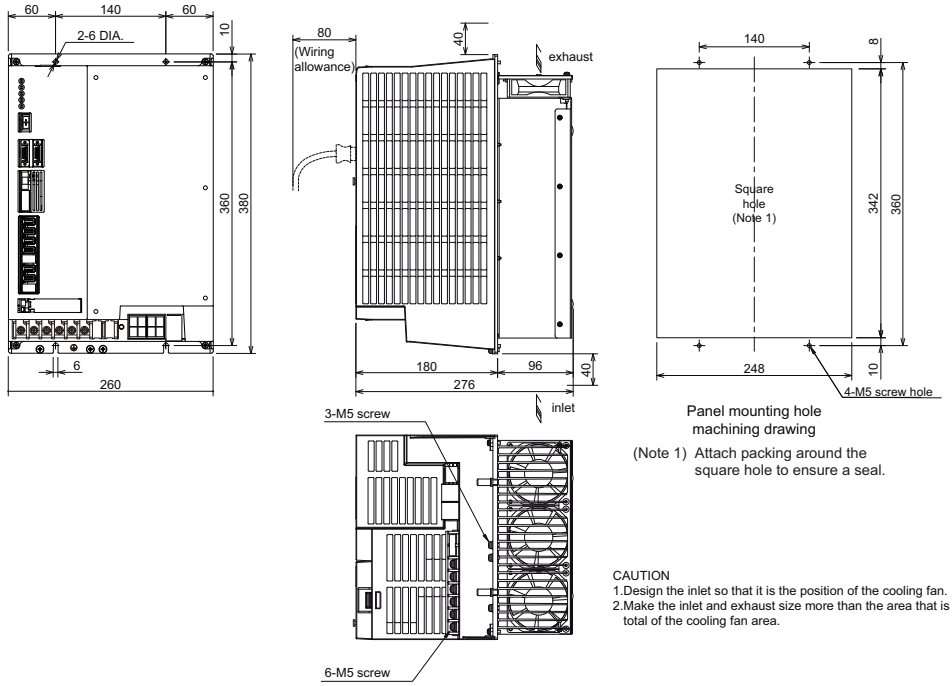
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s^2 (0.5G) / 49m/s^2 (5G)

Recommended wire

	Terminal name							
	TE1 (L1, L2, L3)		TE1 (U, V, W)		CN31 L/M/S (U,V,W,PE)		CN22 (VDD, SG)	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	30	3	22	4	3.5	12	2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	22	4	22	4	3.5	12	2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	14	6	14	6	2	14	1.25 to 2	16 to 14

Outline dimension drawings [Unit : mm]



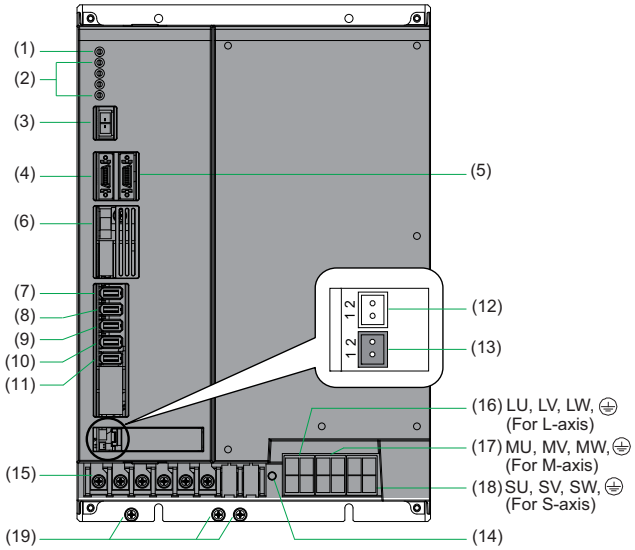
Panel mounting hole machining drawing

(Note 1) Attach packing around the square hole to ensure a seal.

CAUTION
1.Design the inlet so that it is the position of the cooling fan.
2.Make the inlet and exhaust size more than the area that is a total of the cooling fan area.

Multi axis integrated drive unit

MDS-DM-SPV3-10080



⏚ Screw size : M5 x 8
Tightening torque : 2.0Nm

No.	Name	Description
(1)	POWER	24V power supply status indication LED
(2)	SP1,SP2 SV1,SV2	Unit status indication LED
(3)	CN22	Control power input connector (24VDC input)
(4)	CN9A	Connector for DIO/analog output (spindle)
(5)	CN9B	Connector for DIO/analog output (servo)
(6)	OPT1A	NC optical communication connector
(7)	CN2SP	Spindle motor side encoder connection connector 5V power supply capacity: 0.35A
(8)	CN3SP	Spindle side encoder connection connector 5V power supply capacity: 0.35A
(9)	CN2L	Servo motor side encoder connection connector (L-axis) 5V power supply capacity: 0.35A
(10)	CN2M	Servo motor side encoder connection connector (M-axis) 5V power supply capacity: 0.35A
(11)	CN2S	Servo motor side encoder connection connector (S-axis) 5V power supply capacity: 0.35A
(12)	BTA	For connecting converged battery unit
(13)	BT1	For connecting battery built-in drive unit ER6V-C119B
(14)	CHARGE LAMP	Converter voltage output charge-discharge status indication LED
(15)	TE1	L1,L2,L3: Power supply input terminal (3-phase AC output) U,V,W: Motor power output terminal (spindle, 3-phase AC output) P+,N-: DC output for unit stopped caused by power failure *Do not wiring during unused state.
(16)	CN31L	Motor power supply output connector (L-axis, 3-phase AC output)
(17)	CN31M	Motor power supply output connector (M-axis, 3-phase AC output)
(18)	CN31S	Motor power supply output connector (S-axis, 3-phase AC output)
(19)	PE	Grounding terminal (also including grounding of the spindle motor)

Specifications

Item		Specifications
Nominal maximum current (at peak of spindle)[A]		100
Nominal maximum current (at peak of servo)[A]		80x3
Output	Rated voltage[V]	155AC
	Rated current [servo][A]	15.8x3
	Rated current [spindle][A]	26
Input	Rated voltage (50Hz)[V]	200AC
	Rated voltage (60Hz)[V]	200 to 230AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Rated current[A]	38
Control power	Voltage[V]	24DC
	Tolerable voltage fluctuation[%]	+10%, -10%
	Max. current[A]	4
	Max. rush current[A]	10
	Max. rush conductivity time[ms]	100
Max. earth leakage current[mA]		9
Braking [servo]		Regenerative braking and dynamic brakes
	Dynamic brakes	Built-in
Braking [spindle]		Regenerative braking
Heating value	Inside panel[W]	140
	Outside panel[W]	590
Cooling method		Forced air cooling
Mass[kg]		15

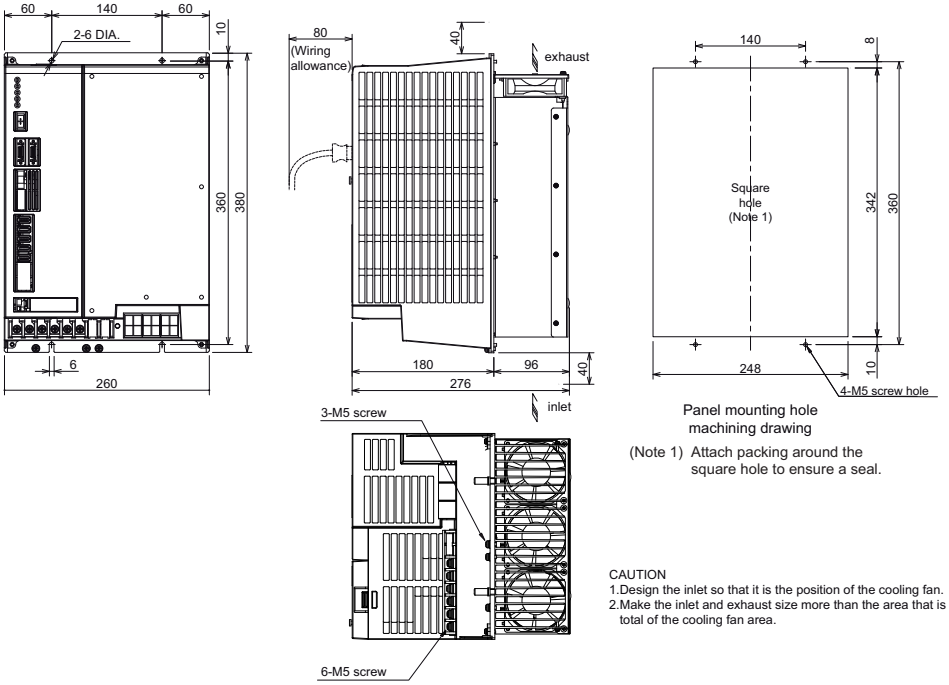
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s^2 (0.5G) / 49m/s^2 (5G)

Recommended wire

	Terminal name							
	TE1 (L1, L2, L3)		TE1 (U, V, W)		CN31 L/M/S (U,V,W,PE)		CN22 (VDD, SG)	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	30	3	5.5	10	3.5	12	2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	22	4	5.5	10	3.5	12	2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	14	6	3.5	12	2	14	1.25 to 2	16 to 14

Outline dimension drawings [Unit : mm]



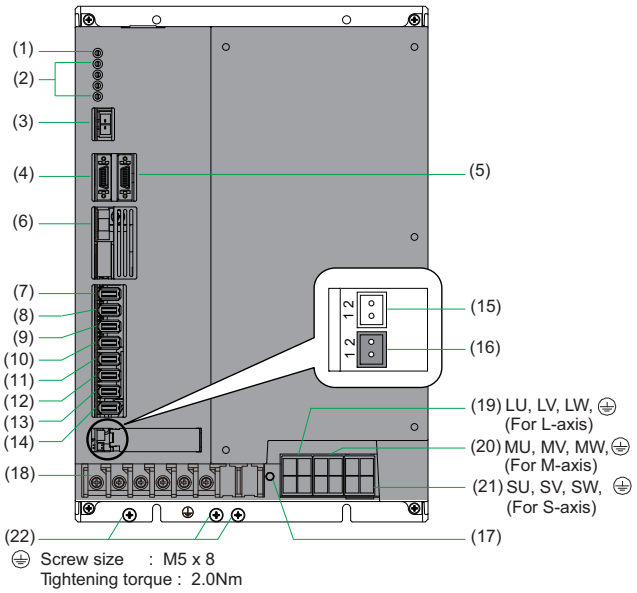
Panel mounting hole machining drawing

(Note 1) Attach packing around the square hole to ensure a seal.

CAUTION
1.Design the inlet so that it is the position of the cooling fan.
2.Make the inlet and exhaust size more than the area that is a total of the cooling fan area.

Multi axis integrated drive unit

MDS-DM-SPV3F-10080



No.	Name	Description
(1)	POWER	24V power supply status indication LED
(2)	SP1,SP2 SV1,SV2	Unit status indication LED
(3)	CN22	Control power input connector (24VDC input)
(4)	CN9A	Connector for DIO/analog output (spindle)
(5)	CN9B	Connector for DIO/analog output (servo)
(6)	OPT1A	NC optical communication connector
(7)	CN2SP	Spindle motor side encoder connection connector 5V power supply capacity: 0.35A
(8)	CN3SP	Spindle side encoder connection connector 5V power supply capacity: 0.35A
(9)	CN2L	Servo motor side encoder connection connector (L-axis) 5V power supply capacity: 0.35A
(10)	CN2M	Servo motor side encoder connection connector (M-axis) 5V power supply capacity: 0.35A
(11)	CN2S	Servo motor side encoder connection connector (S-axis) 5V power supply capacity: 0.35A
(12)	CN3L	MDS-EX-SR connection connector (L-axis:LA)
(13)	CN3M	MDS-EX-SR connection connector (M-axis:MA)
(14)	CN3S	MDS-EX-SR connection connector (S-axis:SA)
(15)	BTA	For connecting converged battery unit
(16)	BT1	For connecting battery built-in drive unit ER6V-C119B
(17)	CHARGE LAMP	Converter voltage output charge-discharge status indication LED
(18)	TE1	L1,L2,L3: Power supply input terminal (3-phase AC output) U,V,W: Motor power output terminal (spindle, 3-phase AC output) P+,N-: DC output for unit stopped caused by power failure *Do not wiring during unused state.
(19)	CN31L	Motor power supply output connector (L-axis, 3-phase AC output)
(20)	CN31M	Motor power supply output connector (M-axis, 3-phase AC output)
(21)	CN31S	Motor power supply output connector (S-axis, 3-phase AC output)
(22)	PE	Grounding terminal (also including grounding of the spindle motor)

Specifications

Item		Specifications
Nominal maximum current (at peak of spindle)[A]		100
Nominal maximum current (at peak of servo)[A]		80x3
Output	Rated voltage[V]	155AC
	Rated current [servo][A]	15.8x3
	Rated current [spindle][A]	26
Input	Rated voltage (50Hz)[V]	200AC
	Rated voltage (60Hz)[V]	200 to 230AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Rated current[A]	38
Control power	Voltage[V]	24DC
	Tolerable voltage fluctuation[%]	+10%, -10%
	Max. current[A]	4
	Max. rush current[A]	10
	Max. rush conductivity time[ms]	100
Max. earth leakage current[mA]		9
Braking [servo]		Regenerative braking and dynamic brakes
	Dynamic brakes	Built-in
Braking [spindle]		Regenerative braking
Heating value	Inside panel[W]	140
	Outside panel[W]	590
Cooling method		Forced air cooling
Mass[kg]		15

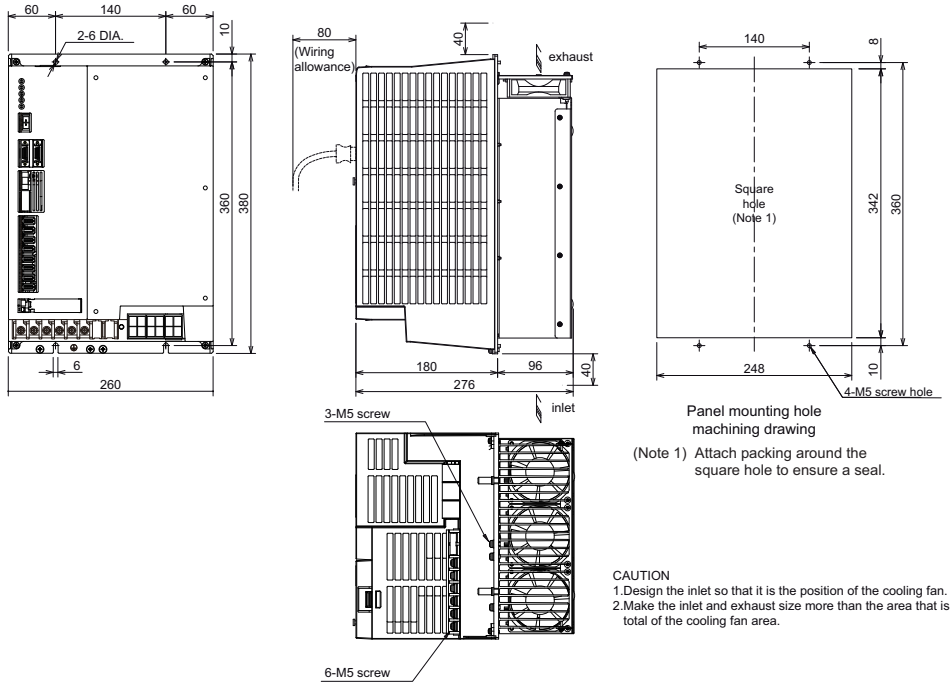
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s^2 (0.5G) / 49m/s^2 (5G)

Recommended wire

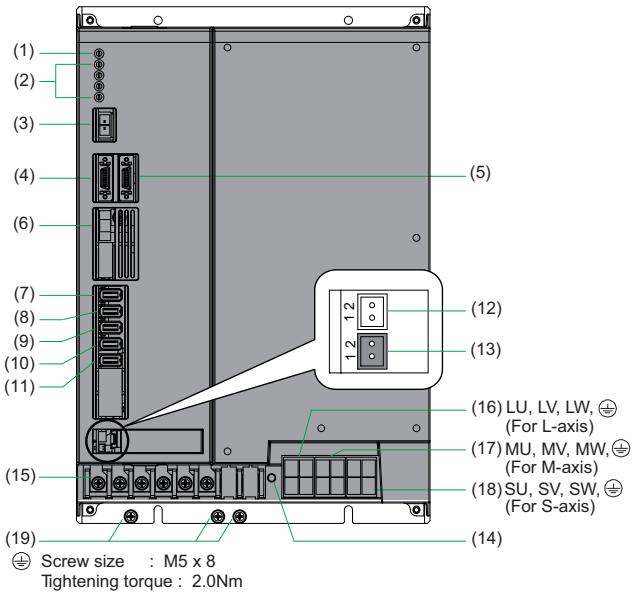
	Terminal name							
	TE1 (L1, L2, L3)		TE1 (U, V, W)		CN31 L/M/S (U,V,W,PE)		CN22 (VDD, SG)	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	30	3	5.5	10	3.5	12	2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	22	4	5.5	10	3.5	12	2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	14	6	3.5	12	2	14	1.25 to 2	16 to 14

Outline dimension drawings [Unit : mm]



Multi axis integrated drive unit

MDS-DM-SPV3-16080



⏚ Screw size : M5 x 8
Tightening torque : 2.0Nm

No.	Name	Description
(1)	POWER	24V power supply status indication LED
(2)	SP1,SP2 SV1,SV2	Unit status indication LED
(3)	CN22	Control power input connector (24VDC input)
(4)	CN9A	Connector for DIO/analog output (spindle)
(5)	CN9B	Connector for DIO/analog output (servo)
(6)	OPT1A	NC optical communication connector
(7)	CN2SP	Spindle motor side encoder connection connector 5V power supply capacity: 0.35A
(8)	CN3SP	Spindle side encoder connection connector 5V power supply capacity: 0.35A
(9)	CN2L	Servo motor side encoder connection connector (L-axis) 5V power supply capacity: 0.35A
(10)	CN2M	Servo motor side encoder connection connector (M-axis) 5V power supply capacity: 0.35A
(11)	CN2S	Servo motor side encoder connection connector (S-axis) 5V power supply capacity: 0.35A
(12)	BTA	For connecting converged battery unit
(13)	BT1	For connecting battery built-in drive unit ER6V-C119B
(14)	CHARGE LAMP	Converter voltage output charge-discharge status indication LED
(15)	TE1	L1,L2,L3: Power supply input terminal (3-phase AC output) U,V,W: Motor power output terminal (spindle, 3-phase AC output) P+,N-: DC output for unit stopped caused by power failure *Do not wiring during unused state.
(16)	CN31L	Motor power supply output connector (L-axis, 3-phase AC output)
(17)	CN31M	Motor power supply output connector (M-axis, 3-phase AC output)
(18)	CN31S	Motor power supply output connector (S-axis, 3-phase AC output)
(19)	PE	Grounding terminal (also including grounding of the spindle motor)

Specifications

Item		Specifications
Nominal maximum current (at peak of spindle)[A]		160
Nominal maximum current (at peak of servo)[A]		80x3
Output	Rated voltage[V]	155AC
	Rated current [servo][A]	15.8x3
	Rated current [spindle][A]	37
Input	Rated voltage (50Hz)[V]	200AC
	Rated voltage (60Hz)[V]	200 to 230AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Rated current[A]	48
Control power	Voltage[V]	24DC
	Tolerable voltage fluctuation[%]	+10%, -10%
	Max. current[A]	4
	Max. rush current[A]	10
	Max. rush conductivity time[ms]	100
Max. earth leakage current[mA]		9
Braking [servo]		Regenerative braking and dynamic brakes
	Dynamic brakes	Built-in
Braking [spindle]		Regenerative braking
Heating value	Inside panel[W]	150
	Outside panel[W]	650
Cooling method		Forced air cooling
Mass[kg]		15

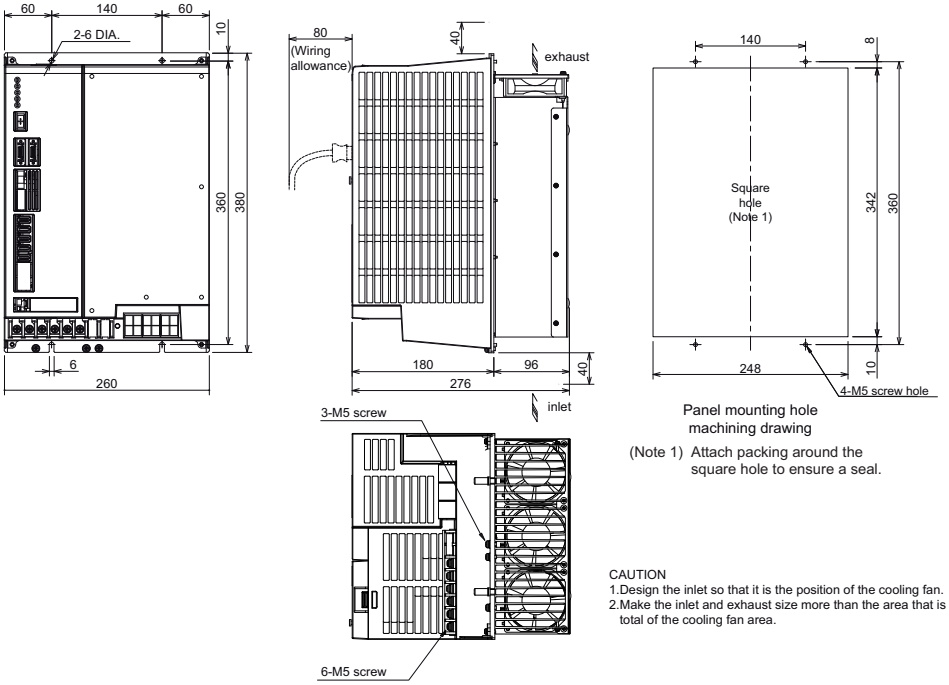
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s^2 (0.5G) / 49m/s^2 (5G)

Recommended wire

	Terminal name							
	TE1 (L1, L2, L3)		TE1 (U, V, W)		CN31 L/M/S (U,V,W,PE)		CN22 (VDD, SG)	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	30	3	14	6	3.5	12	2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	22	4	8	8	3.5	12	2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	14	6	5.5	10	2	14	1.25 to 2	16 to 14

Outline dimension drawings [Unit : mm]



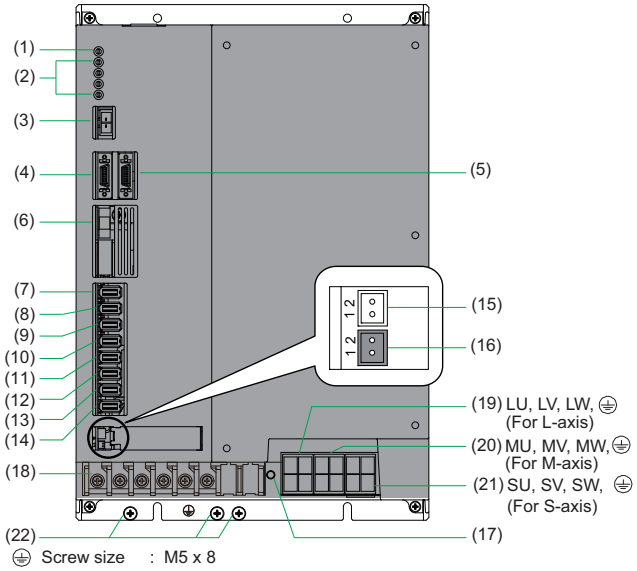
Panel mounting hole machining drawing

(Note 1) Attach packing around the square hole to ensure a seal.

CAUTION
1.Design the inlet so that it is the position of the cooling fan.
2.Make the inlet and exhaust size more than the area that is a total of the cooling fan area.

Multi axis integrated drive unit

MDS-DM-SPV3F-16080



⏚ Screw size : M5 x 8
Tightening torque : 2.0Nm

No.	Name	Description
(1)	POWER	24V power supply status indication LED
(2)	SP1,SP2 SV1,SV2	Unit status indication LED
(3)	CN22	Control power input connector (24VDC input)
(4)	CN9A	Connector for DIO/analog output (spindle)
(5)	CN9B	Connector for DIO/analog output (servo)
(6)	OPT1A	NC optical communication connector
(7)	CN2SP	Spindle motor side encoder connection connector 5V power supply capacity: 0.35A
(8)	CN3SP	Spindle side encoder connection connector 5V power supply capacity: 0.35A
(9)	CN2L	Servo motor side encoder connection connector (L-axis) 5V power supply capacity: 0.35A
(10)	CN2M	Servo motor side encoder connection connector (M-axis) 5V power supply capacity: 0.35A
(11)	CN2S	Servo motor side encoder connection connector (S-axis) 5V power supply capacity: 0.35A
(12)	CN3L	MDS-EX-SR connection connector (L-axis:LA)
(13)	CN3M	MDS-EX-SR connection connector (M-axis:MA)
(14)	CN3S	MDS-EX-SR connection connector (S-axis:SA)
(15)	BTA	For connecting converged battery unit
(16)	BT1	For connecting battery built-in drive unit ER6V-C119B
(17)	CHARGE LAMP	Converter voltage output charge-discharge status indication LED
(18)	TE1	L1,L2,L3: Power supply input terminal (3-phase AC output) U,V,W: Motor power output terminal (spindle, 3-phase AC output) P+,N-: DC output for unit stopped caused by power failure *Do not wiring during unused state.
(19)	CN31L	Motor power supply output connector (L-axis, 3-phase AC output)
(20)	CN31M	Motor power supply output connector (M-axis, 3-phase AC output)
(21)	CN31S	Motor power supply output connector (S-axis, 3-phase AC output)
(22)	PE	Grounding terminal (also including grounding of the spindle motor)

Specifications

Item		Specifications
Nominal maximum current (at peak of spindle)[A]		160
Nominal maximum current (at peak of servo)[A]		80x3
Output	Rated voltage[V]	155AC
	Rated current [servo][A]	15.8x3
	Rated current [spindle][A]	37
Input	Rated voltage (50Hz)[V]	200AC
	Rated voltage (60Hz)[V]	200 to 230AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Rated current[A]	48
Control power	Voltage[V]	24DC
	Tolerable voltage fluctuation[%]	+10%, -10%
	Max. current[A]	4
	Max. rush current[A]	10
	Max. rush conductivity time[ms]	100
Max. earth leakage current[mA]		9
Braking [servo]		Regenerative braking and dynamic brakes
	Dynamic brakes	Built-in
Braking [spindle]		Regenerative braking
Heating value	Inside panel[W]	150
	Outside panel[W]	650
Cooling method		Forced air cooling
Mass[kg]		15

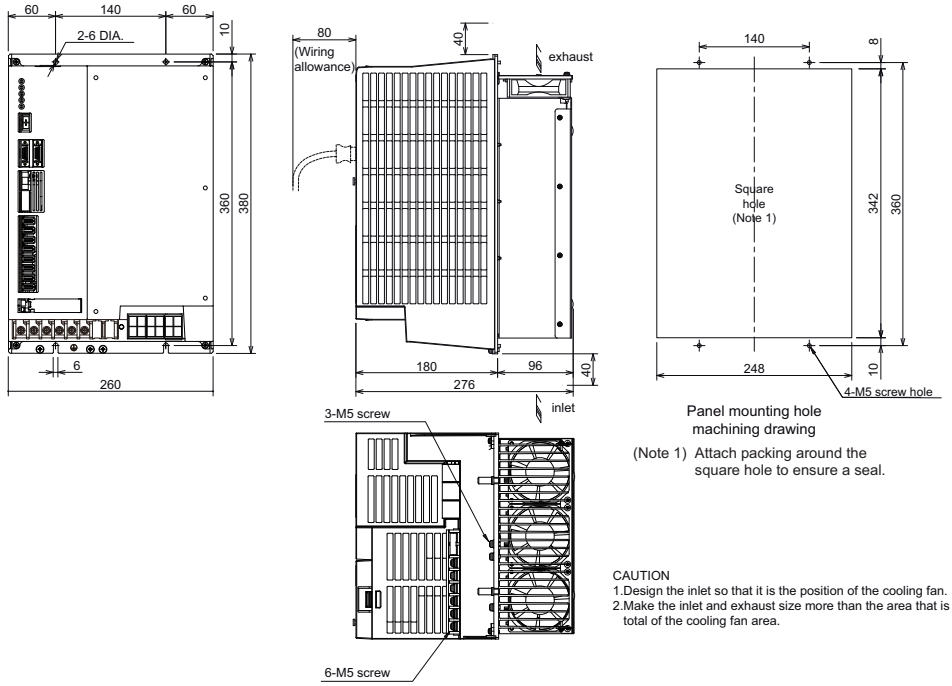
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s^2 (0.5G) / 49m/s^2 (5G)

Recommended wire

	Terminal name							
	TE1 (L1, L2, L3)		TE1 (U, V, W)		CN31 L/M/S (U,V,W,PE)		CN22 (VDD, SG)	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	30	3	14	6	3.5	12	2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	22	4	8	8	3.5	12	2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	14	6	5.5	10	2	14	1.25 to 2	16 to 14

Outline dimension drawings [Unit : mm]



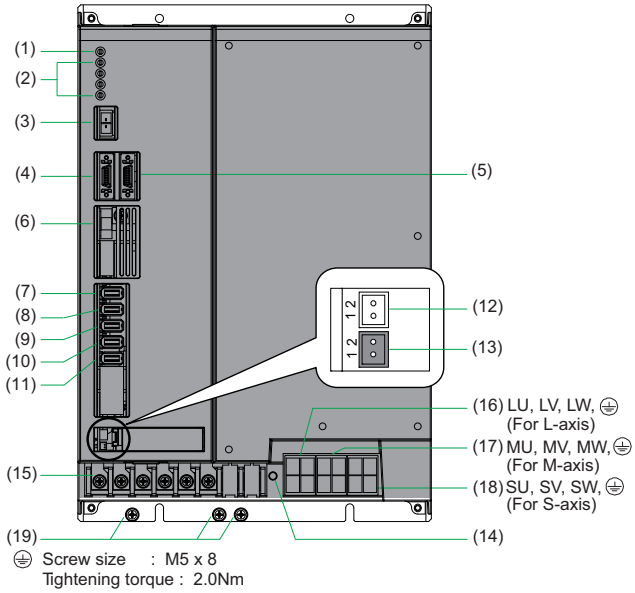
Panel mounting hole machining drawing

(Note 1) Attach packing around the square hole to ensure a seal.

CAUTION
1.Design the inlet so that it is the position of the cooling fan.
2.Make the inlet and exhaust size more than the area that is a total of the cooling fan area.

Multi axis integrated drive unit

MDS-DM-SPV3-20080



No.	Name	Description
(1)	POWER	24V power supply status indication LED
(2)	SP1,SP2 SV1,SV2	Unit status indication LED
(3)	CN22	Control power input connector (24VDC input)
(4)	CN9A	Connector for DIO/analog output (spindle)
(5)	CN9B	Connector for DIO/analog output (servo)
(6)	OPT1A	NC optical communication connector
(7)	CN2SP	Spindle motor side encoder connection connector 5V power supply capacity: 0.35A
(8)	CN3SP	Spindle side encoder connection connector 5V power supply capacity: 0.35A
(9)	CN2L	Servo motor side encoder connection connector (L-axis) 5V power supply capacity: 0.35A
(10)	CN2M	Servo motor side encoder connection connector (M-axis) 5V power supply capacity: 0.35A
(11)	CN2S	Servo motor side encoder connection connector (S-axis) 5V power supply capacity: 0.35A
(12)	BTA	For connecting converged battery unit
(13)	BT1	For connecting battery built-in drive unit ER6V-C119B
(14)	CHARGE LAMP	Converter voltage output charge-discharge status indication LED
(15)	TE1	L1,L2,L3: Power supply input terminal (3-phase AC output) U,V,W: Motor power output terminal (spindle, 3-phase AC output) P+,N-: DC output for unit stopped caused by power failure *Do not wiring during unused state.
(16)	CN31L	Motor power supply output connector (L-axis, 3-phase AC output)
(17)	CN31M	Motor power supply output connector (M-axis, 3-phase AC output)
(18)	CN31S	Motor power supply output connector (S-axis, 3-phase AC output)
(19)	PE	Grounding terminal (also including grounding of the spindle motor)

Specifications

Item		Specifications
Nominal maximum current (at peak of spindle)[A]		200
Nominal maximum current (at peak of servo)[A]		80x3
Output	Rated voltage[V]	155AC
	Rated current [servo][A]	15.8x3
	Rated current [spindle][A]	67
Input	Rated voltage (50Hz)[V]	200AC
	Rated voltage (60Hz)[V]	200 to 230AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Rated current[A]	60
Control power	Voltage[V]	24DC
	Tolerable voltage fluctuation[%]	+10%, -10%
	Max. current[A]	4
	Max. rush current[A]	10
	Max. rush conductivity time[ms]	100
Max. earth leakage current[mA]		9
Braking [servo]		Regenerative braking and dynamic brakes
	Dynamic brakes	Built-in
Braking [spindle]		Regenerative braking
Heating value	Inside panel[W]	175
	Outside panel[W]	815
Cooling method		Forced air cooling
Mass[kg]		15

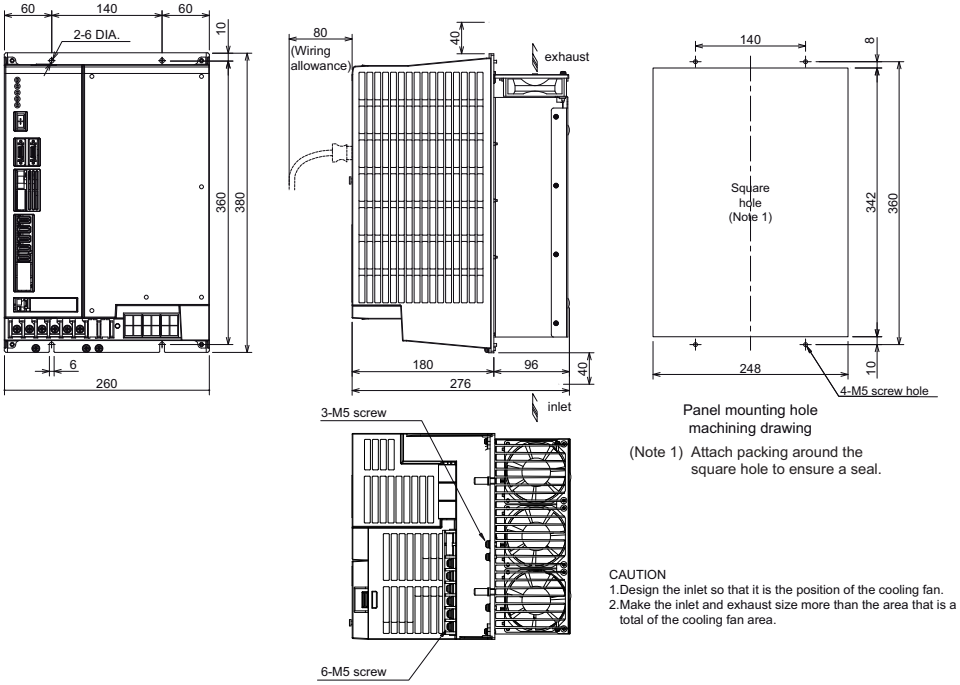
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s^2 (0.5G) / 49m/s^2 (5G)

Recommended wire

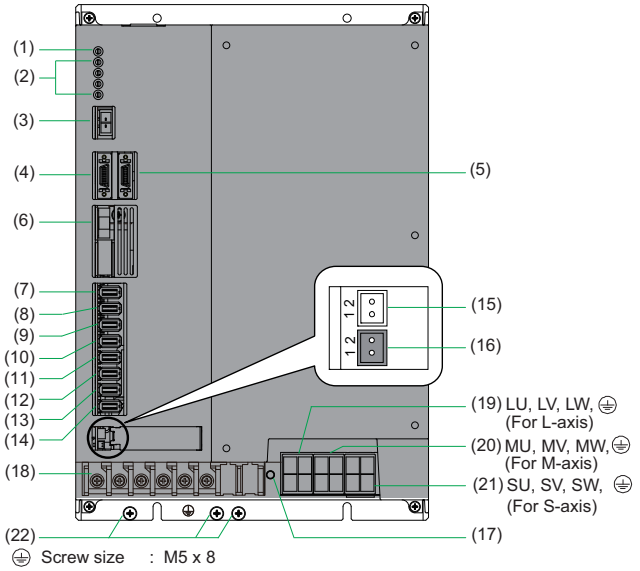
	Terminal name							
	TE1 (L1, L2, L3)		TE1 (U, V, W)		CN31 L/M/S (U,V,W,PE)		CN22 (VDD, SG)	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	30	3	22	4	3.5	12	2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	22	4	22	4	3.5	12	2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	14	6	14	6	2	14	1.25 to 2	16 to 14

Outline dimension drawings [Unit : mm]



Multi axis integrated drive unit

MDS-DM-SPV3F-20080



⏚ Screw size : M5 x 8
Tightening torque : 2.0Nm

No.	Name	Description
(1)	POWER	24V power supply status indication LED
(2)	SP1,SP2 SV1,SV2	Unit status indication LED
(3)	CN22	Control power input connector (24VDC input)
(4)	CN9A	Connector for DIO/analog output (spindle)
(5)	CN9B	Connector for DIO/analog output (servo)
(6)	OPT1A	NC optical communication connector
(7)	CN2SP	Spindle motor side encoder connection connector 5V power supply capacity: 0.35A
(8)	CN3SP	Spindle side encoder connection connector 5V power supply capacity: 0.35A
(9)	CN2L	Servo motor side encoder connection connector (L-axis) 5V power supply capacity: 0.35A
(10)	CN2M	Servo motor side encoder connection connector (M-axis) 5V power supply capacity: 0.35A
(11)	CN2S	Servo motor side encoder connection connector (S-axis) 5V power supply capacity: 0.35A
(12)	CN3L	MDS-EX-SR connection connector (L-axis:LA)
(13)	CN3M	MDS-EX-SR connection connector (M-axis:MA)
(14)	CN3S	MDS-EX-SR connection connector (S-axis:SA)
(15)	BTA	For connecting converged battery unit
(16)	BT1	For connecting battery built-in drive unit ER6V-C119B
(17)	CHARGE LAMP	Converter voltage output charge-discharge status indication LED
(18)	TE1	L1,L2,L3: Power supply input terminal (3-phase AC output) U,V,W: Motor power output terminal (spindle, 3-phase AC output) P+,N-: DC output for unit stopped caused by power failure *Do not wiring during unused state.
(19)	CN31L	Motor power supply output connector (L-axis, 3-phase AC output)
(20)	CN31M	Motor power supply output connector (M-axis, 3-phase AC output)
(21)	CN31S	Motor power supply output connector (S-axis, 3-phase AC output)
(22)	PE	Grounding terminal (also including grounding of the spindle motor)

Specifications

Item		Specifications
Nominal maximum current (at peak of spindle)[A]		200
Nominal maximum current (at peak of servo)[A]		80x3
Output	Rated voltage[V]	155AC
	Rated current [servo][A]	15.8x3
	Rated current [spindle][A]	67
Input	Rated voltage (50Hz)[V]	200AC
	Rated voltage (60Hz)[V]	200 to 230AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Rated current[A]	60
Control power	Voltage[V]	24DC
	Tolerable voltage fluctuation[%]	+10%, -10%
	Max. current[A]	4
	Max. rush current[A]	10
	Max. rush conductivity time[ms]	100
Max. earth leakage current[mA]		9
Braking [servo]		Regenerative braking and dynamic brakes
	Dynamic brakes	Built-in
Braking [spindle]		Regenerative braking
Heating value	Inside panel[W]	175
	Outside panel[W]	815
Cooling method		Forced air cooling
Mass[kg]		15

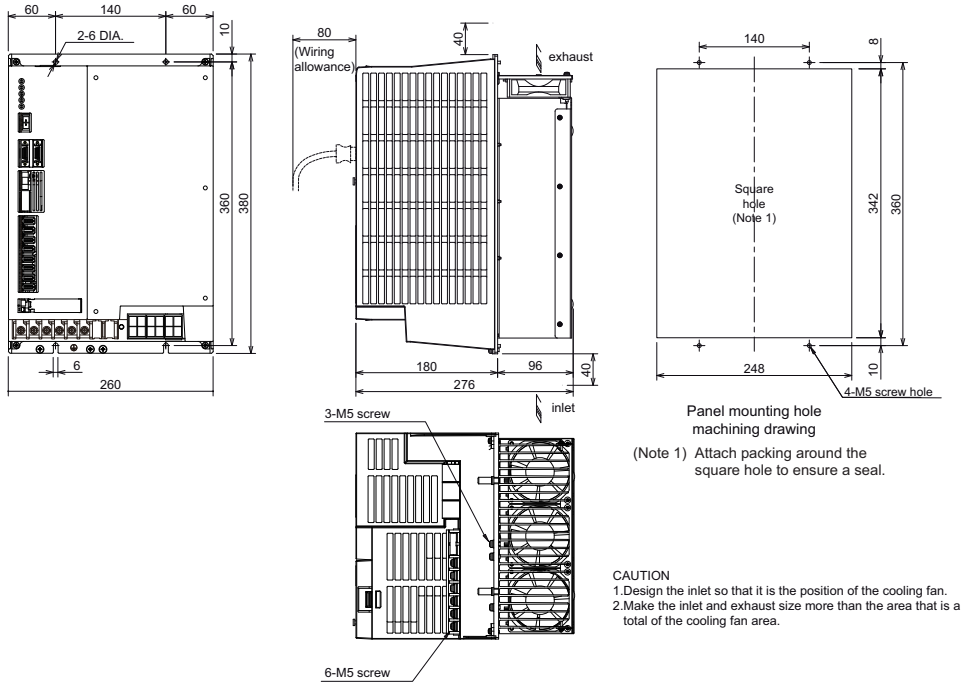
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s^2 (0.5G) / 49m/s^2 (5G)

Recommended wire

	Terminal name							
	TE1 (L1, L2, L3)		TE1 (U, V, W)		CN31 L/M/S (U,V,W,PE)		CN22 (VDD, SG)	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	30	3	22	4	3.5	12	2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	22	4	22	4	3.5	12	2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	14	6	14	6	2	14	1.25 to 2	16 to 14

Outline dimension drawings [Unit : mm]



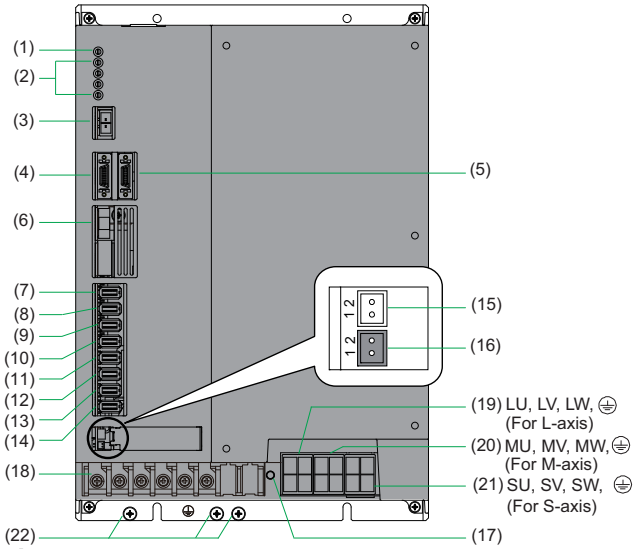
Panel mounting hole machining drawing

(Note 1) Attach packing around the square hole to ensure a seal.

CAUTION
1.Design the inlet so that it is the position of the cooling fan.
2.Make the inlet and exhaust size more than the area that is a total of the cooling fan area.

Multi axis integrated drive unit

MDS-DM-SPV3F-200120



⏚ Screw size : M5 x 8
Tightening torque : 2.0Nm

No.	Name	Description
(1)	POWER	24V power supply status indication LED
(2)	SP1,SP2 SV1,SV2	Unit status indication LED
(3)	CN22	Control power input connector (24VDC input)
(4)	CN9A	Connector for DIO/analog output (spindle)
(5)	CN9B	Connector for DIO/analog output (servo)
(6)	OPT1A	NC optical communication connector
(7)	CN2SP	Spindle motor side encoder connection connector 5V power supply capacity: 0.35A
(8)	CN3SP	Spindle side encoder connection connector 5V power supply capacity: 0.35A
(9)	CN2L	Servo motor side encoder connection connector (L-axis) 5V power supply capacity: 0.35A
(10)	CN2M	Servo motor side encoder connection connector (M-axis) 5V power supply capacity: 0.35A
(11)	CN2S	Servo motor side encoder connection connector (S-axis) 5V power supply capacity: 0.35A
(12)	CN3L	MDS-EX-SR connection connector (L-axis:LA)
(13)	CN3M	MDS-EX-SR connection connector (M-axis:MA)
(14)	CN3S	MDS-EX-SR connection connector (S-axis:SA)
(15)	BTA	For connecting converged battery unit
(16)	BT1	For connecting battery built-in drive unit ER6V-C119B
(17)	CHARGE LAMP	Converter voltage output charge-discharge status indication LED
(18)	TE1	L1,L2,L3: Power supply input terminal (3-phase AC output) U,V,W: Motor power output terminal (spindle, 3-phase AC output) P+,N-: DC output for unit stopped caused by power failure *Do not wiring during unused state.
(19)	CN31L	Motor power supply output connector (L-axis, 3-phase AC output)
(20)	CN31M	Motor power supply output connector (M-axis, 3-phase AC output)
(21)	CN31S	Motor power supply output connector (S-axis, 3-phase AC output)
(22)	PE	Grounding terminal (also including grounding of the spindle motor)

Specifications

Item		Specifications
Nominal maximum current (at peak of spindle)[A]		200
Nominal maximum current (at peak of servo)[A]		120x3
Output	Rated voltage[V]	155AC
	Rated current [servo][A]	28x3
	Rated current [spindle][A]	67
Input	Rated voltage (50Hz)[V]	200AC
	Rated voltage (60Hz)[V]	200 to 230AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Rated current[A]	65
Control power	Voltage[V]	24DC
	Tolerable voltage fluctuation[%]	+10%, -10%
	Max. current[A]	4
	Max. rush current[A]	10
	Max. rush conductivity time[ms]	100
Max. earth leakage current[mA]		9
Braking [servo]		Regenerative braking and dynamic brakes
	Dynamic brakes	Built-in
Braking [spindle]		Regenerative braking
Heating value	Inside panel[W]	235
	Outside panel[W]	1025
Cooling method		Forced air cooling
Mass[kg]		15

(*1) There is a limit to the specification (compatible motor,etc).

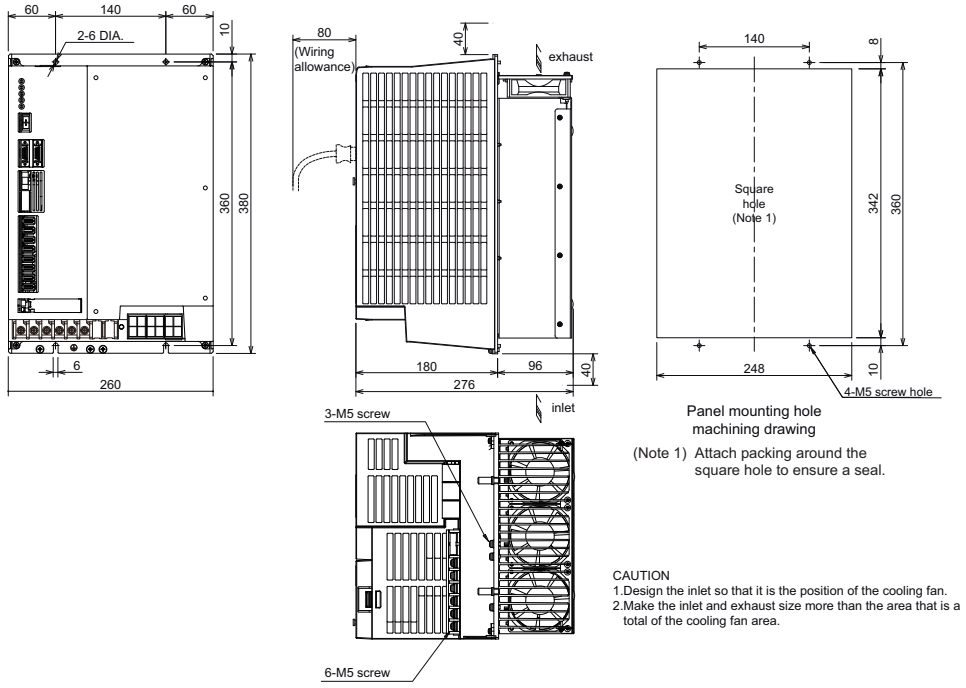
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s^2 (0.5G) / 49m/s^2 (5G)

Recommended wire

	Terminal name							
	TE1 (L1, L2, L3)		TE1 (U, V, W)		CN31 L/M/S (U,V,W,PE)		CN22 (VDD, SG)	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	30	3	22	4	5.5	10	2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	22	4	22	4	5.5	10	2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	14	6	14	6	3.5	12	1.25 to 2	16 to 14

Outline dimension drawings [Unit : mm]



Panel mounting hole machining drawing

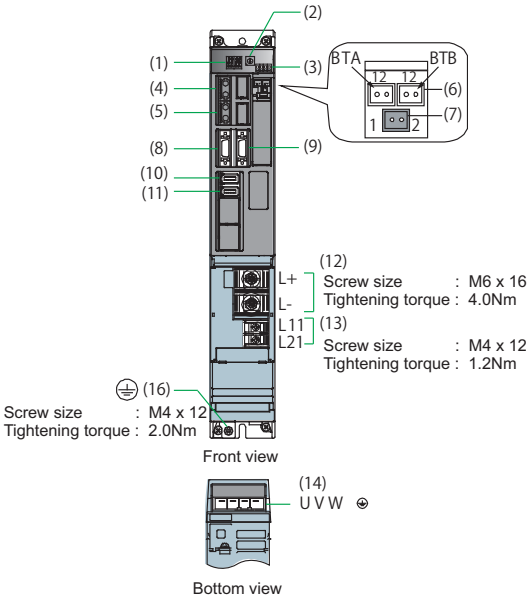
(Note 1) Attach packing around the square hole to ensure a seal.

CAUTION
1.Design the inlet so that it is the position of the cooling fan.
2.Make the inlet and exhaust size more than the area that is a total of the cooling fan area.

Spindle drive unit

Spindle drive unit

MDS-D-SP-20



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SWL	Axis No. setting switch
(3)	SW1	Unused axis setting switch
(4)	CN1A	NC or master axis optical communication connector
(5)	CN1B	Slave axis optical communication connector
(6)		(Unused)
(7)	BT1	For connecting battery built-in drive unit ER6V-C119B
(8)	CN9	(Unused)
(9)	CN4	Power supply communication connector
(10)	CN2L	Motor side encoder connection connector 5V power supply capacity: 0.35A
(11)	CN3L	Spindle side encoder connection connector 5V power supply capacity: 0.35A
(12)	TE2	Main circuit power supply input terminal (DC input)
(13)	TE3	Control power input terminal (single-phase AC input)
(14)	TE1	Motor power supply output connector (3-phase AC output)
(16)	PE	Grounding terminal Note that TE1 connector is used for the motor grounding .

Specifications

Item		Specifications
Nominal maximum current(peak)[A]		20
Output	Rated voltage[V]	155AC
	Rated current[A]	4.5
Input	Rated voltage[V]	270 to 311DC
	Rated current[A]	7.0
Control power	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±3% max
	Voltage(50Hz)[V]	200AC
	Voltage(60Hz)[V]	200 to 230AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Max. current[A]	0.2
	Max. rush current[A]	30
	Max. rush conductivity time[ms]	6
Max. earth leakage current[mA]		15
Braking		Regenerative braking
Heating value	Inside panel[W]	24
	Outside panel[W]	31
Cooling method		Forced air cooling
Mass[kg]		3.8

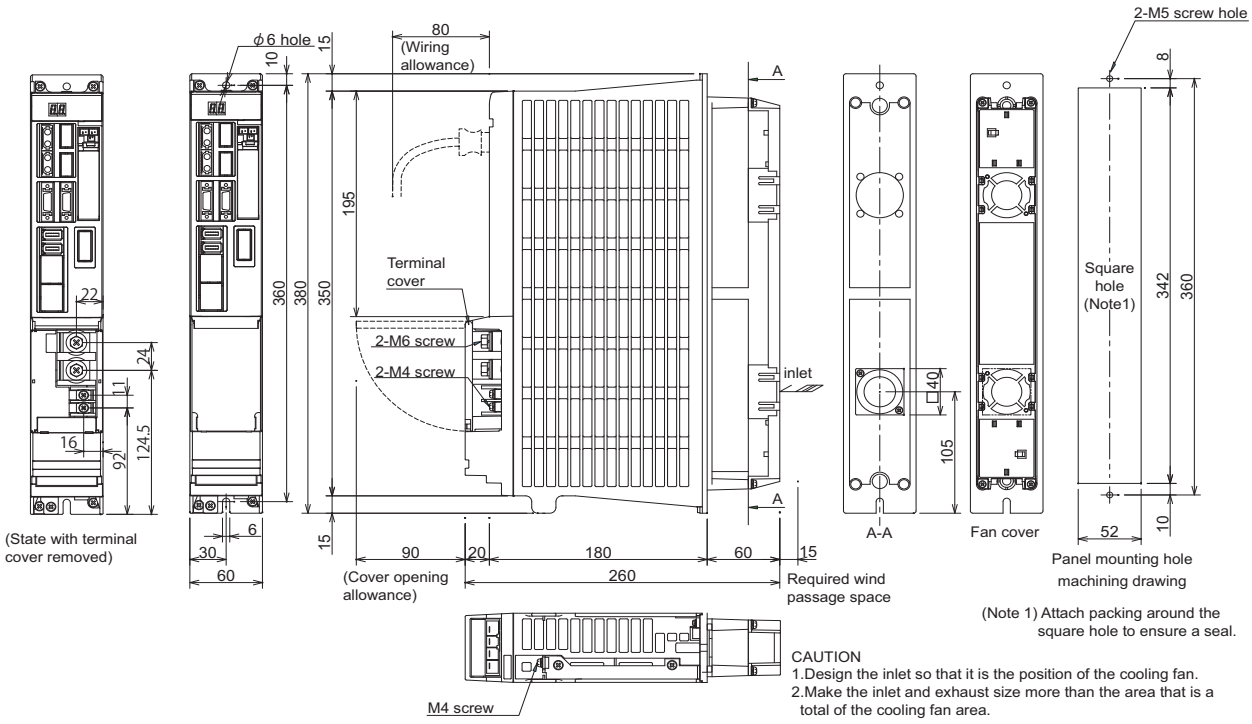
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s^2 (0.5G) / 49m/s^2 (5G)

Recommended wire

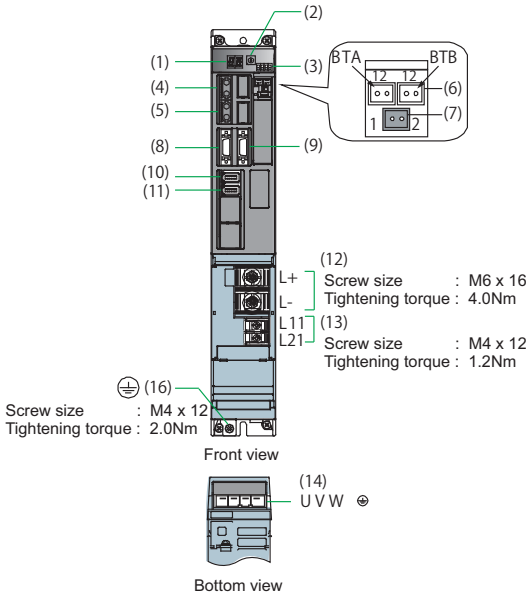
	Terminal name					
	TE1 (U, V, W, earth)		TE2 (L+, L-)		TE3 (L11, L21)	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	2	14	Match with TE2 of selected power supply unit		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	2	14			2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	2	14			1.25 to 2	16 to 14

Outline dimension drawings [Unit : mm]



Spindle drive unit

MDS-D-SP-40



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SWL	Axis No. setting switch
(3)	SW1	Unused axis setting switch
(4)	CN1A	NC or master axis optical communication connector
(5)	CN1B	Slave axis optical communication connector
(6)		(Unused)
(7)	BT1	For connecting battery built-in drive unit ER6V-C119B
(8)	CN9	(Unused)
(9)	CN4	Power supply communication connector
(10)	CN2L	Motor side encoder connection connector 5V power supply capacity: 0.35A
(11)	CN3L	Spindle side encoder connection connector 5V power supply capacity: 0.35A
(12)	TE2	Main circuit power supply input terminal (DC input)
(13)	TE3	Control power input terminal (single-phase AC input)
(14)	TE1	Motor power supply output connector (3-phase AC output)
(16)	PE	Grounding terminal Note that TE1 connector is used for the motor grounding .

Specifications

Item		Specifications
Nominal maximum current(peak)[A]		40
Output	Rated voltage[V]	155AC
	Rated current[A]	10
Input	Rated voltage[V]	270 to 311DC
	Rated current[A]	13
Control power	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±3% max
	Voltage(50Hz)[V]	200AC
	Voltage(60Hz)[V]	200 to 230AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Max. current[A]	0.2
	Max. rush current[A]	30
	Max. rush conductivity time[ms]	6
Max. earth leakage current[mA]		15
Braking		Regenerative braking
Heating value	Inside panel[W]	29
	Outside panel[W]	65
Cooling method		Forced air cooling
Mass[kg]		3.8

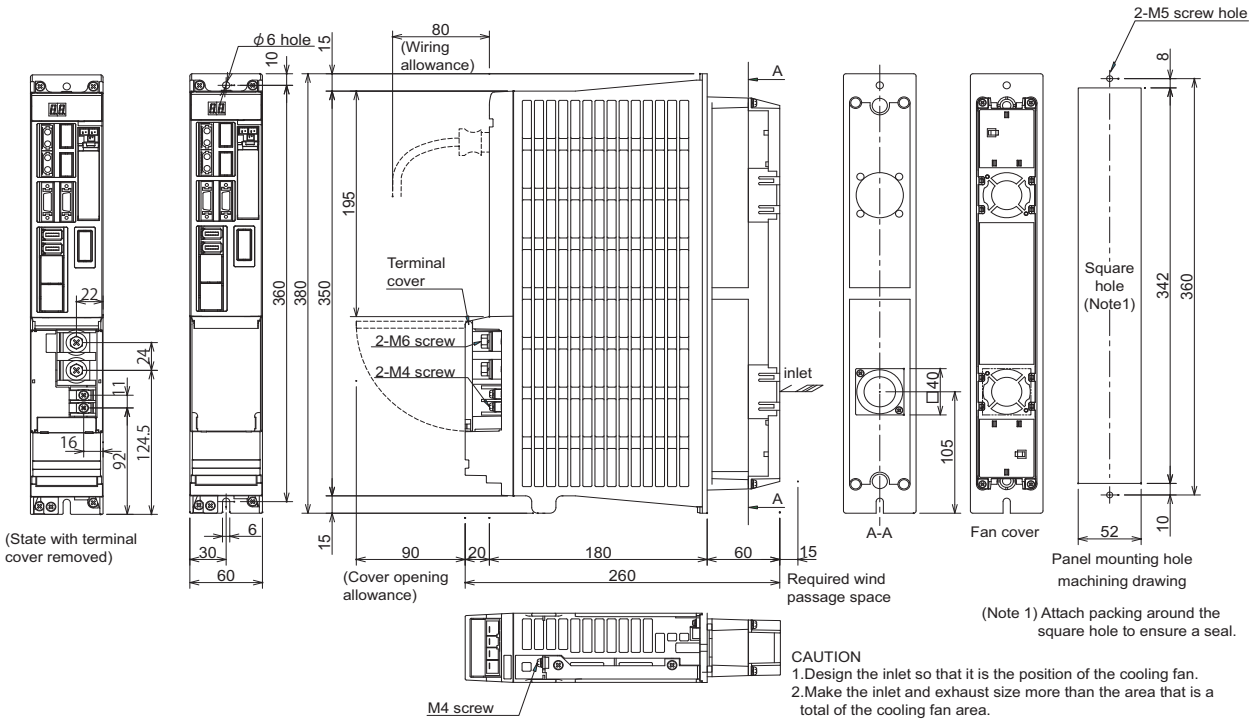
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s^2 (0.5G) / 49m/s^2 (5G)

Recommended wire

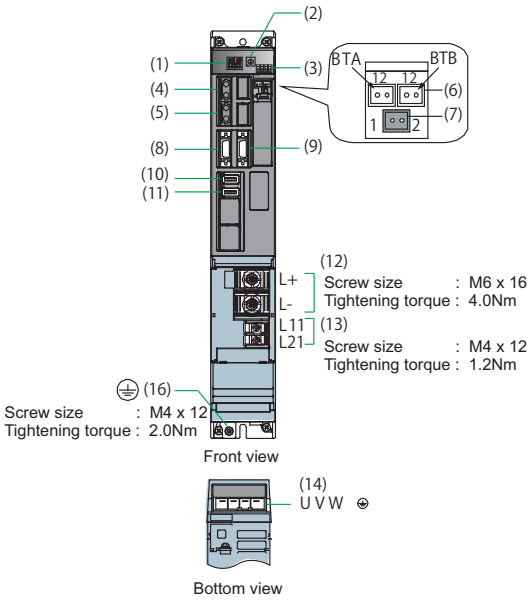
	Terminal name					
	TE1 (U, V, W, earth)		TE2 (L+, L-)		TE3 (L11, L21)	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	2	14	Match with TE2 of selected power supply unit		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	2	14			2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	2	14			1.25 to 2	16 to 14

Outline dimension drawings [Unit : mm]



Spindle drive unit

MDS-D-SP-80



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SWL	Axis No. setting switch
(3)	SW1	Unused axis setting switch
(4)	CN1A	NC or master axis optical communication connector
(5)	CN1B	Slave axis optical communication connector
(6)		(Unused)
(7)	BT1	For connecting battery built-in drive unit ER6V-C119B
(8)	CN9	(Unused)
(9)	CN4	Power supply communication connector
(10)	CN2L	Motor side encoder connection connector 5V power supply capacity: 0.35A
(11)	CN3L	Spindle side encoder connection connector 5V power supply capacity: 0.35A
(12)	TE2	Main circuit power supply input terminal (DC input)
(13)	TE3	Control power input terminal (single-phase AC input)
(14)	TE1	Motor power supply output connector (3-phase AC output)
(16)	PE	Grounding terminal Note that TE1 connector is used for the motor grounding .

Specifications

Item		Specifications
Nominal maximum current(peak)[A]		80
Output	Rated voltage[V]	155AC
	Rated current[A]	18
Input	Rated voltage[V]	270 to 311DC
	Rated current[A]	20
Control power	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±3% max
	Voltage(50Hz)[V]	200AC
	Voltage(60Hz)[V]	200 to 230AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Max. current[A]	0.2
	Max. rush current[A]	30
	Max. rush conductivity time[ms]	6
Max. earth leakage current[mA]		15
Braking		Regenerative braking
Heating value	Inside panel[W]	37
	Outside panel[W]	121
Cooling method		Forced air cooling
Mass[kg]		3.8

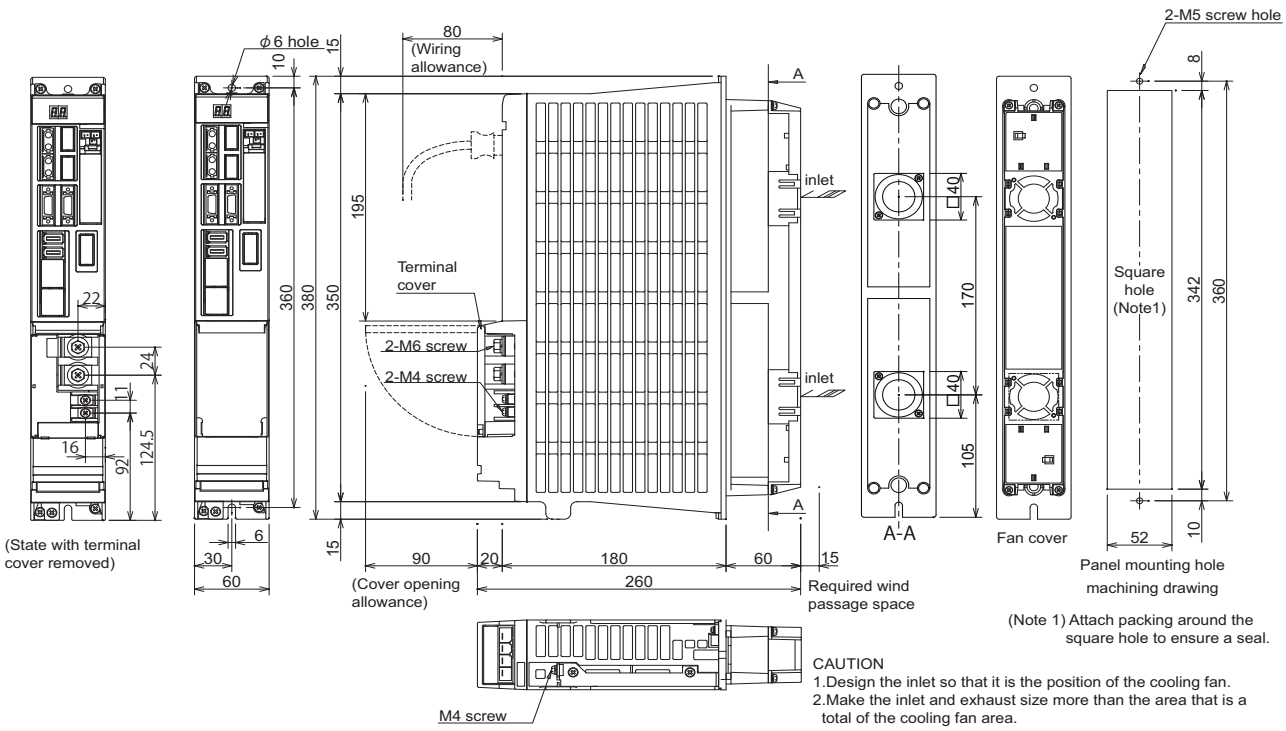
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s^2 (0.5G) / 49m/s^2 (5G)

Recommended wire

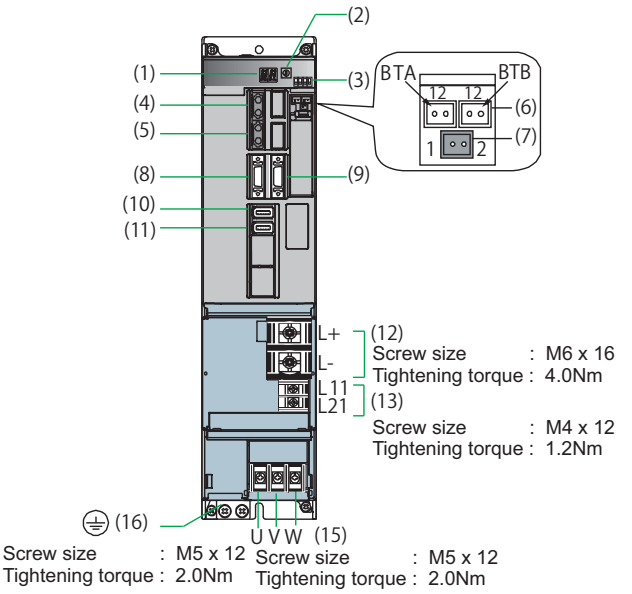
	Terminal name					
	TE1 (U, V, W, earth)		TE2 (L+, L-)		TE3 (L11, L21)	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	5.5	10	Match with TE2 of selected power supply unit		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	3.5	12			2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	3.5	12			1.25 to 2	16 to 14

Outline dimension drawings [Unit : mm]



Spindle drive unit

MDS-D-SP-160



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SWL	Axis No. setting switch
(3)	SW1	Unused axis setting switch
(4)	CN1A	NC or master axis optical communication connector
(5)	CN1B	Slave axis optical communication connector
(6)		(Unused)
(7)	BT1	For connecting battery built-in drive unit ER6V-C119B
(8)	CN9	(Unused)
(9)	CN4	Power supply communication connector
(10)	CN2L	Motor side encoder connection connector 5V power supply capacity: 0.35A
(11)	CN3L	Spindle side encoder connection connector 5V power supply capacity: 0.35A
(12)	TE2	Main circuit power supply input terminal (DC input)
(13)	TE3	Control power input terminal (single-phase AC input)
(15)	TE1	Motor power supply output terminal (3-phase AC output)
(16)	PE	Grounding terminal

Specifications

Item		Specifications
Nominal maximum current(peak)[A]		160
Output	Rated voltage[V]	155AC
	Rated current[A]	54
Input	Rated voltage[V]	270 to 311DC
	Rated current[A]	41
Control power	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±3% max
	Voltage(50Hz)[V]	200AC
	Voltage(60Hz)[V]	200 to 230AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Max. current[A]	0.2
	Max. rush current[A]	30
	Max. rush conductivity time[ms]	6
Max. earth leakage current[mA]		15
Braking		Regenerative braking
Heating value	Inside panel[W]	54
	Outside panel[W]	236
Cooling method		Forced air cooling
Mass[kg]		4.5

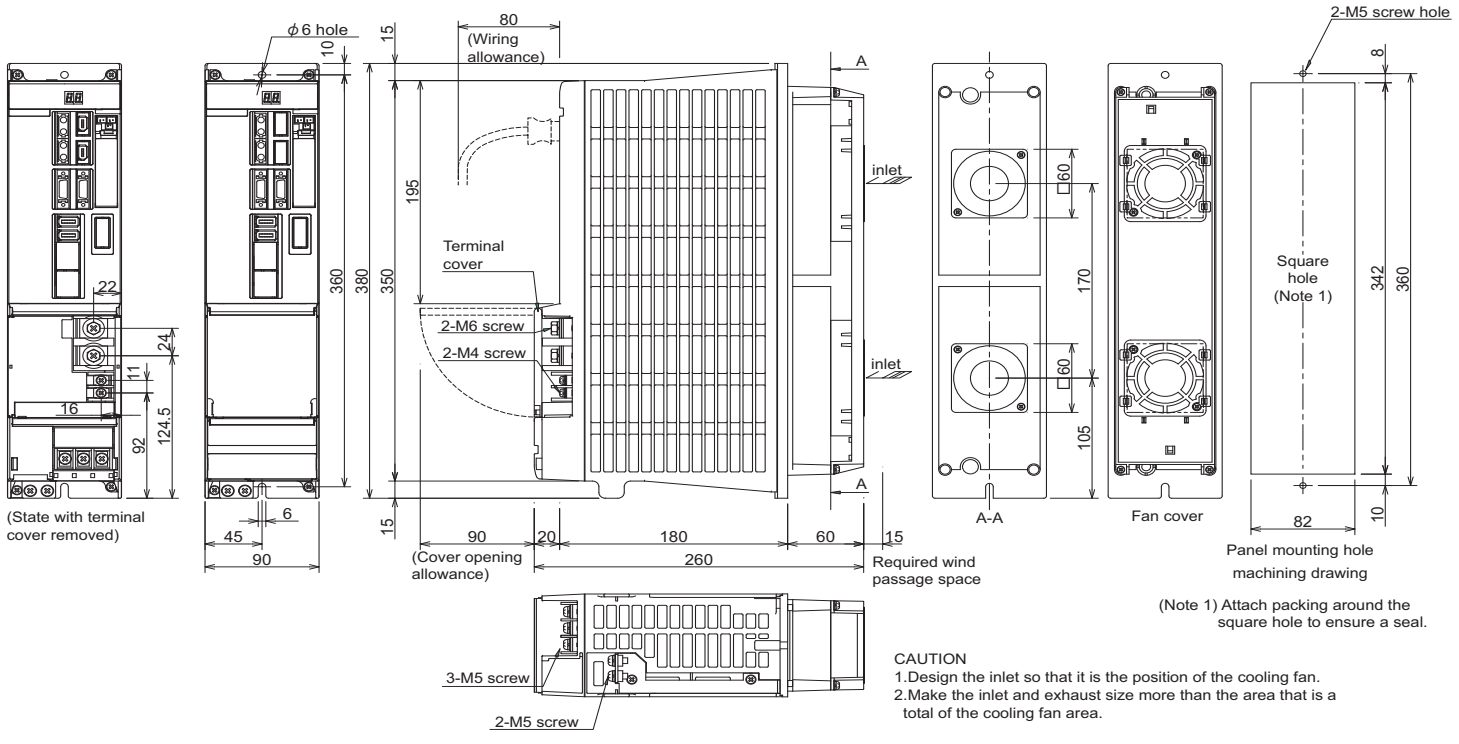
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s^2 (0.5G) / 49m/s^2 (5G)

Recommended wire

	Terminal name					
	TE1 (U, V, W, earth)		TE2 (L+, L-)		TE3 (L11, L21)	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	22	4	Match with TE2 of selected power supply unit		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	14	6			2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	8	8			1.25 to 2	16 to 14

Outline dimension drawings [Unit : mm]

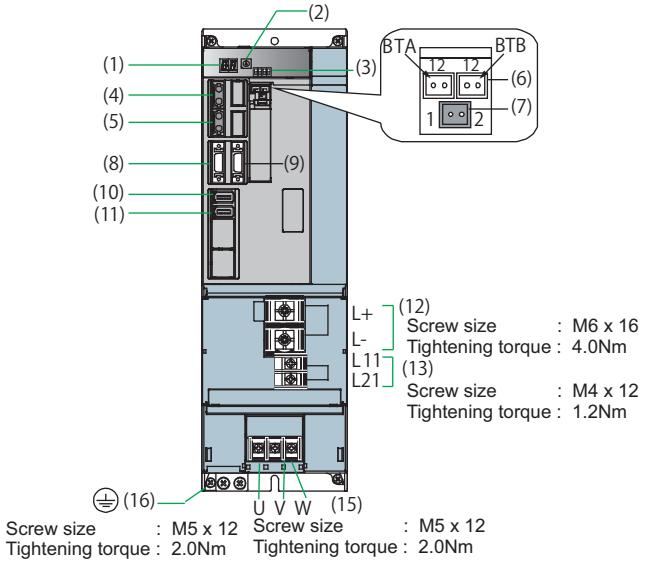


(Note 1) Attach packing around the square hole to ensure a seal.

CAUTION
1.Design the inlet so that it is the position of the cooling fan.
2.Make the inlet and exhaust size more than the area that is a total of the cooling fan area.

Spindle drive unit

MDS-D-SP-200



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SWL	Axis No. setting switch
(3)	SW1	Unused axis setting switch
(4)	CN1A	NC or master axis optical communication connector
(5)	CN1B	Slave axis optical communication connector
(6)		(Unused)
(7)	BT1	For connecting battery built-in drive unit ER6V-C119B
(8)	CN9	(Unused)
(9)	CN4	Power supply communication connector
(10)	CN2L	Motor side encoder connection connector 5V power supply capacity: 0.35A
(11)	CN3L	Spindle side encoder connection connector 5V power supply capacity: 0.35A
(12)	TE2	Main circuit power supply input terminal (DC input)
(13)	TE3	Control power input terminal (single-phase AC input)
(15)	TE1	Motor power supply output terminal (3-phase AC output)
(16)	PE	Grounding terminal

Specifications

Item		Specifications
Nominal maximum current(peak)[A]		200
Output	Rated voltage[V]	155AC
	Rated current[A]	85
Input	Rated voltage[V]	270 to 311DC
	Rated current[A]	76
Control power	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±3% max
	Voltage(50Hz)[V]	200AC
	Voltage(60Hz)[V]	200 to 230AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Max. current[A]	0.2
	Max. rush current[A]	30
	Max. rush conductivity time[ms]	6
Max. earth leakage current[mA]		15
Braking		Regenerative braking
Heating value	Inside panel[W]	78
	Outside panel[W]	404
Cooling method		Forced air cooling
Mass[kg]		5.8

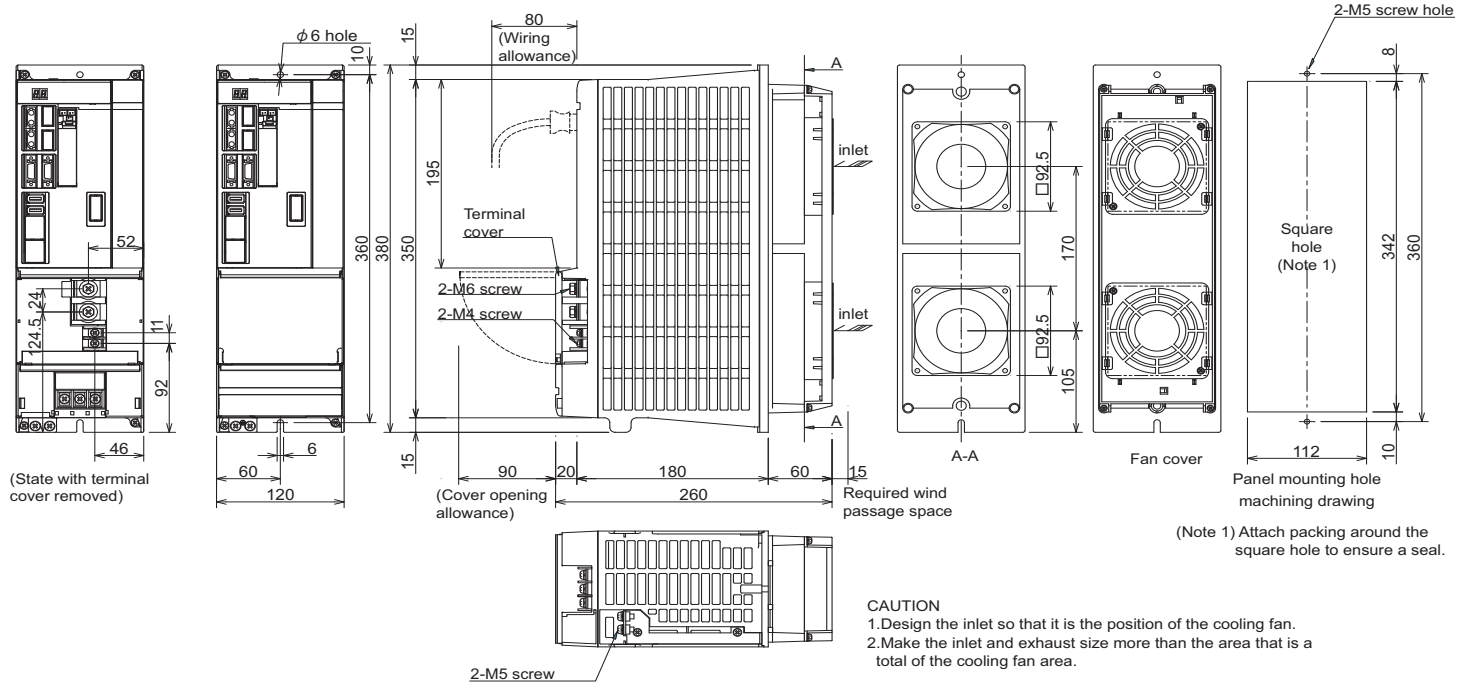
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s^2 (0.5G) / 49m/s^2 (5G)

Recommended wire

	Terminal name					
	TE1 (U, V, W, earth)		TE2 (L+, L-)		TE3 (L11, L21)	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	38	2	Match with TE2 of selected power supply unit		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	22	4			2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	22	4			1.25 to 2	16 to 14

Outline dimension drawings [Unit : mm]

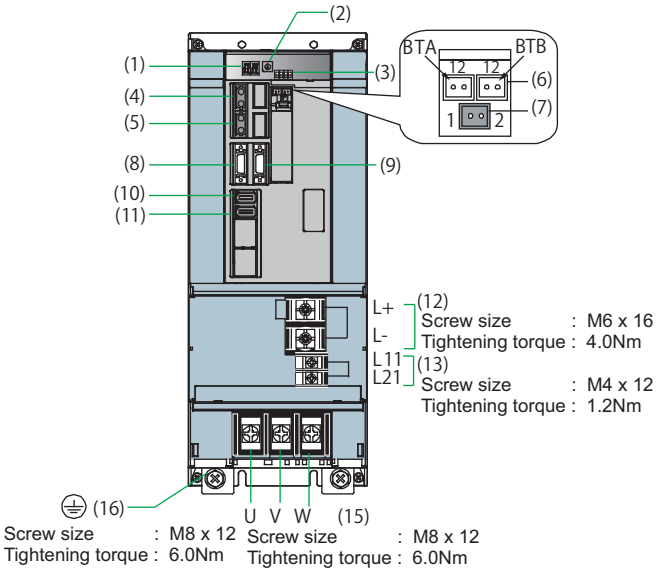


(Note 1) Attach packing around the square hole to ensure a seal.

CAUTION
1.Design the inlet so that it is the position of the cooling fan.
2.Make the inlet and exhaust size more than the area that is a total of the cooling fan area.

Spindle drive unit

MDS-D-SP-240



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SWL	Axis No. setting switch
(3)	SW1	Unused axis setting switch
(4)	CN1A	NC or master axis optical communication connector
(5)	CN1B	Slave axis optical communication connector
(6)		(Unused)
(7)	BT1	For connecting battery built-in drive unit ER6V-C119B
(8)	CN9	(Unused)
(9)	CN4	Power supply communication connector
(10)	CN2L	Motor side encoder connection connector 5V power supply capacity: 0.35A
(11)	CN3L	Spindle side encoder connection connector 5V power supply capacity: 0.35A
(12)	TE2	Main circuit power supply input terminal (DC input)
(13)	TE3	Control power input terminal (single-phase AC input)
(15)	TE1	Motor power supply output terminal (3-phase AC output)
(16)	PE	Grounding terminal

Specifications

Item		Specifications
Nominal maximum current(peak)[A]		240
Output	Rated voltage[V]	155AC
	Rated current[A]	94
Input	Rated voltage[V]	270 to 311DC
	Rated current[A]	95
Control power	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±3% max
	Voltage(50Hz)[V]	200AC
	Voltage(60Hz)[V]	200 to 230AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Max. current[A]	0.2
	Max. rush current[A]	30
	Max. rush conductivity time[ms]	6
Max. earth leakage current[mA]		15
Braking		Regenerative braking
Heating value	Inside panel[W]	100
	Outside panel[W]	520
Cooling method		Forced air cooling
Mass[kg]		6.5

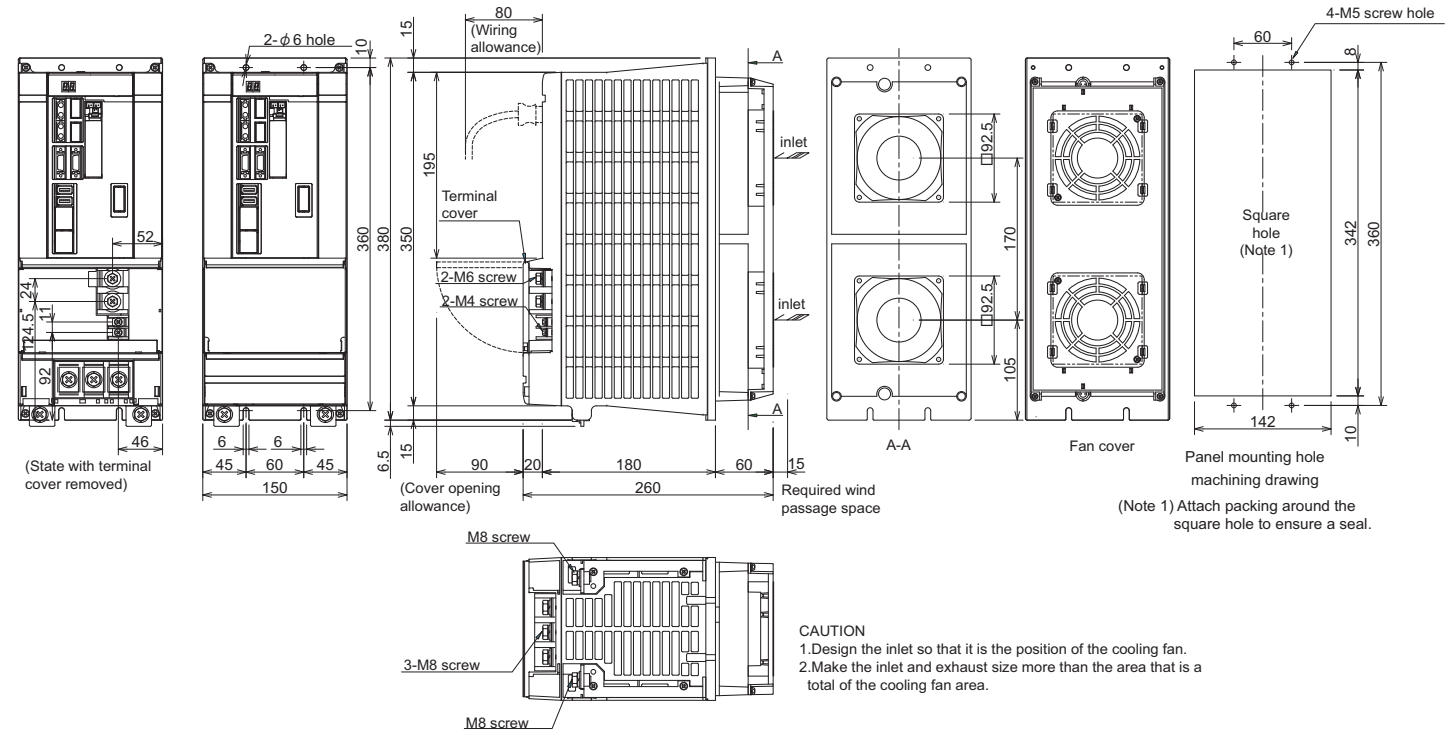
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s^2 (0.5G) / 49m/s^2 (5G)

Recommended wire

	Terminal name					
	TE1 (U, V, W, earth)		TE2 (L+, L-)		TE3 (L11, L21)	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	60	1/0	Match with TE2 of selected power supply unit		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	38	2			2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	22	4			1.25 to 2	16 to 14

Outline dimension drawings [Unit : mm]

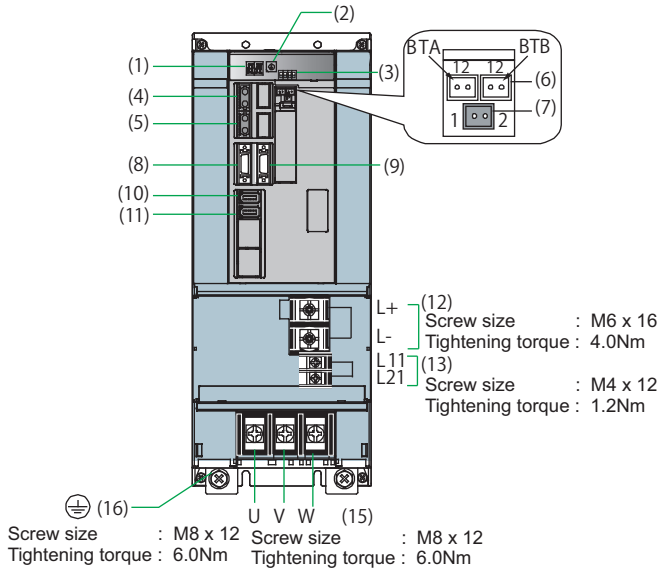


CAUTION
1.Design the inlet so that it is the position of the cooling fan.
2.Make the inlet and exhaust size more than the area that is a total of the cooling fan area.

(Note 1) Attach packing around the square hole to ensure a seal.

Spindle drive unit

MDS-D-SP-320



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SWL	Axis No. setting switch
(3)	SW1	Unused axis setting switch
(4)	CN1A	NC or master axis optical communication connector
(5)	CN1B	Slave axis optical communication connector
(6)		(Unused)
(7)	BT1	For connecting battery built-in drive unit ER6V-C119B
(8)	CN9	(Unused)
(9)	CN4	Power supply communication connector
(10)	CN2L	Motor side encoder connection connector 5V power supply capacity: 0.35A
(11)	CN3L	Spindle side encoder connection connector 5V power supply capacity: 0.35A
(12)	TE2	Main circuit power supply input terminal (DC input)
(13)	TE3	Control power input terminal (single-phase AC input)
(15)	TE1	Motor power supply output terminal (3-phase AC output)
(16)	PE	Grounding terminal

Specifications

Item		Specifications
Nominal maximum current(peak)[A]		320
Output	Rated voltage[V]	155AC
	Rated current[A]	130
Input	Rated voltage[V]	270 to 311DC
	Rated current[A]	140
Control power	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±3% max
	Voltage(50Hz)[V]	200AC
	Voltage(60Hz)[V]	200 to 230AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Max. current[A]	0.2
	Max. rush current[A]	30
	Max. rush conductivity time[ms]	6
Max. earth leakage current[mA]		15
Braking		Regenerative braking
Heating value	Inside panel[W]	118
	Outside panel[W]	688
Cooling method		Forced air cooling
Mass[kg]		7.5

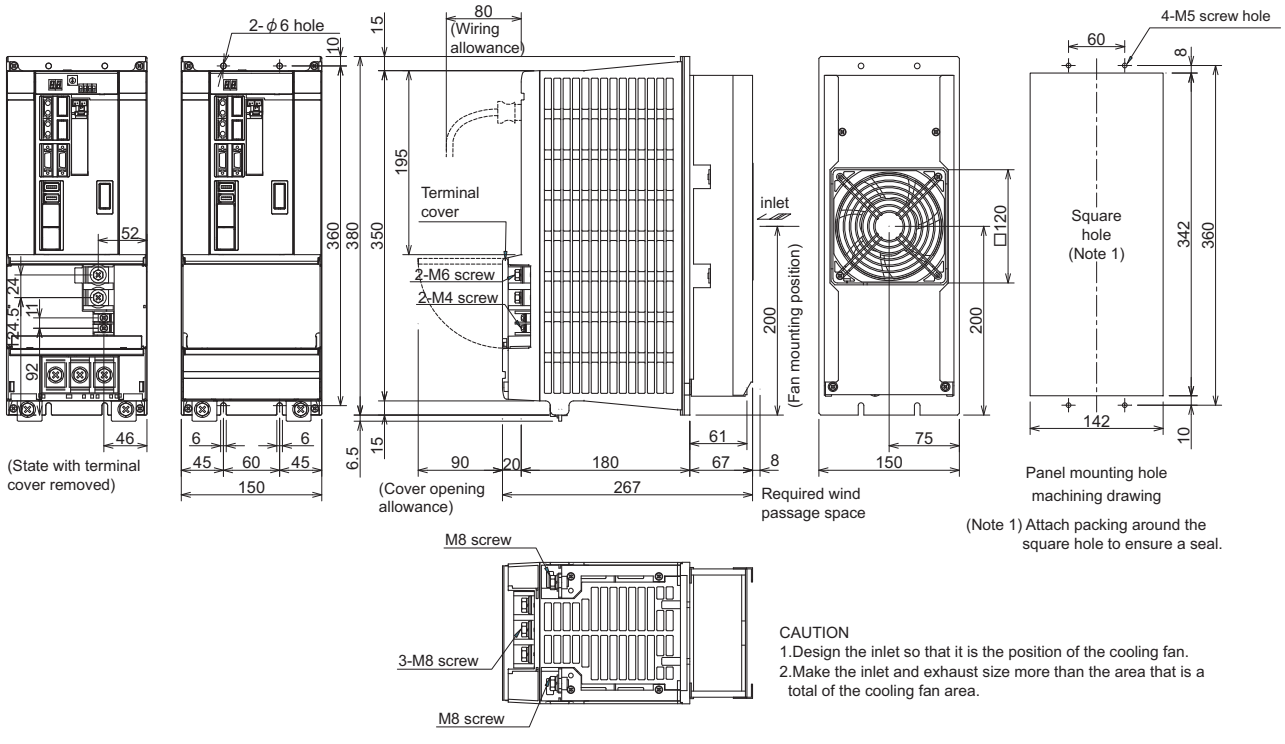
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s^2 (0.5G) / 49m/s^2 (5G)

Recommended wire

	Terminal name					
	TE1 (U, V, W, earth)		TE2 (L+, L-)		TE3 (L11, L21)	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	-	-	Match with TE2 of selected power supply unit		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	60	1/0			2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	38	2			1.25 to 2	16 to 14

Outline dimension drawings [Unit : mm]

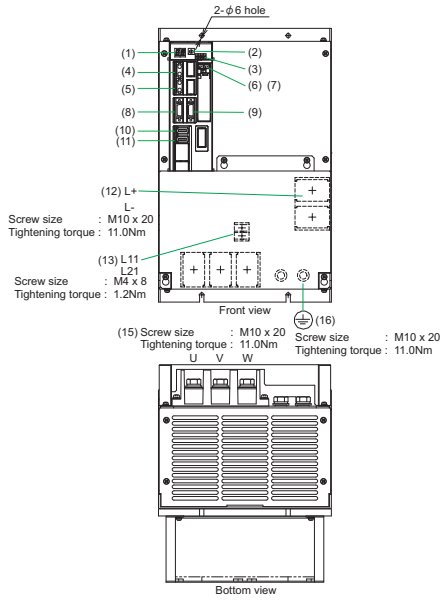


(Note 1) Attach packing around the square hole to ensure a seal.

CAUTION
1.Design the inlet so that it is the position of the cooling fan.
2.Make the inlet and exhaust size more than the area that is a total of the cooling fan area.

Spindle drive unit

MDS-D-SP-400



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SWL	Axis No. setting switch
(3)	SW1	Unused axis setting switch
(4)	CN1A	NC or master axis optical communication connector
(5)	CN1B	Slave axis optical communication connector
(6)		(Unused)
(7)	BT1	For connecting battery built-in drive unit ER6V-C119B
(8)	CN9	(Unused)
(9)	CN4	Power supply communication connector
(10)	CN2L	Motor side encoder connection connector 5V power supply capacity: 0.35A
(11)	CN3L	Spindle side encoder connection connector 5V power supply capacity: 0.35A
(12)	TE2	Main circuit power supply input terminal (DC input)
(13)	TE3	Control power input terminal (single-phase AC input)
(15)	TE1	Motor power supply output terminal (3-phase AC output)
(16)	PE	Grounding terminal

Specifications

Item		Specifications
Nominal maximum current(peak)[A]		400
Output	Rated voltage[V]	155AC
	Rated current[A]	174
Input	Rated voltage[V]	270 to 311DC
	Rated current[A]	150
Control power	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±3% max
	Voltage(50Hz)[V]	200AC
	Voltage(60Hz)[V]	200 to 230AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Max. current[A]	0.2
	Max. rush current[A]	30
	Max. rush conductivity time[ms]	9
Max. earth leakage current[mA]		15
Braking		Regenerative braking
Heating value	Inside panel[W]	148
	Outside panel[W]	897
Cooling method		Forced air cooling
Mass[kg]		16.5

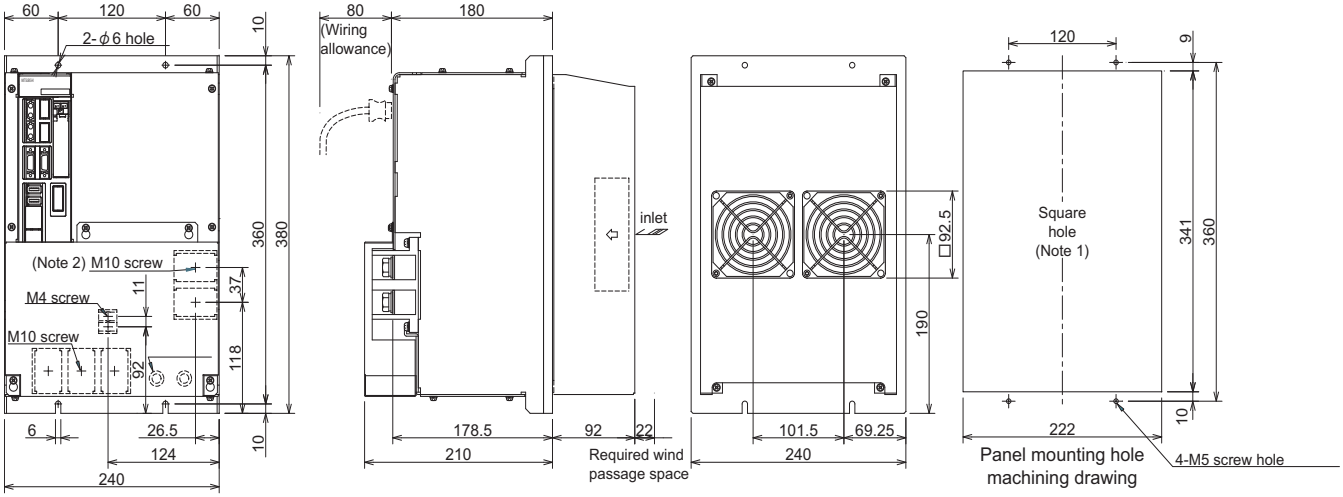
Environmental conditions

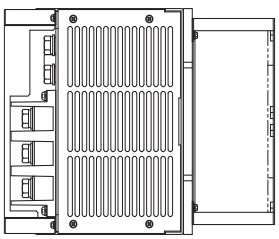
Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s^2 (0.5G) / 49m/s^2 (5G)

Recommended wire

	Terminal name					
	TE1 (U, V, W, earth)		TE2 (L+, L-)		TE3 (L11, L21)	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	-	-	Bar enclosed		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	80	3/0			2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	60	1/0			1.25 to 2	16 to 14

Outline dimension drawings [Unit : mm]



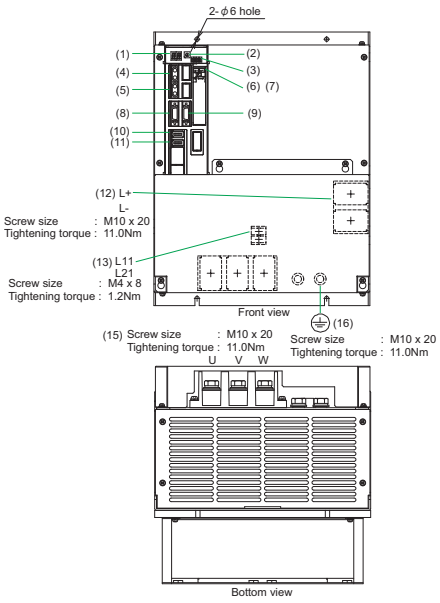


(Note 1) Attach packing around the square hole to ensure a seal.
(Note 2) DC connection bar is required.
Always install a lage capacity drive unit in the left side of power supply unit,and connect with DC connection bar.

CAUTION
1.Design the inlet so that it is the position of the cooling fan.
2.Make the inlet and exhaust size more than the area that is a total of the cooling fan area.

Spindle drive unit

MDS-D-SP-640



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SWL	Axis No. setting switch
(3)	SW1	Unused axis setting switch
(4)	CN1A	NC or master axis optical communication connector
(5)	CN1B	Slave axis optical communication connector
(6)		(Unused)
(7)	BT1	For connecting battery built-in drive unit ER6V-C119B
(8)	CN9	(Unused)
(9)	CN4	Power supply communication connector
(10)	CN2L	Motor side encoder connection connector 5V power supply capacity: 0.35A
(11)	CN3L	Spindle side encoder connection connector 5V power supply capacity: 0.35A
(12)	TE2	Main circuit power supply input terminal (DC input)
(13)	TE3	Control power input terminal (single-phase AC input)
(15)	TE1	Motor power supply output terminal (3-phase AC output)
(16)	PE	Grounding terminal

Specifications

Item		Specifications
Nominal maximum current(peak)[A]		640
Output	Rated voltage[V]	155AC
	Rated current[A]	200
Input	Rated voltage[V]	270 to 311DC
	Rated current[A]	210
Control power	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±3% max
	Voltage(50Hz)[V]	200AC
	Voltage(60Hz)[V]	200 to 230AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Max. current[A]	0.2
	Max. rush current[A]	30
	Max. rush conductivity time[ms]	9
Max. earth leakage current[mA]		15
Braking		Regenerative braking
Heating value	Inside panel[W]	196
	Outside panel[W]	1231
Cooling method		Forced air cooling
Mass[kg]		16.5

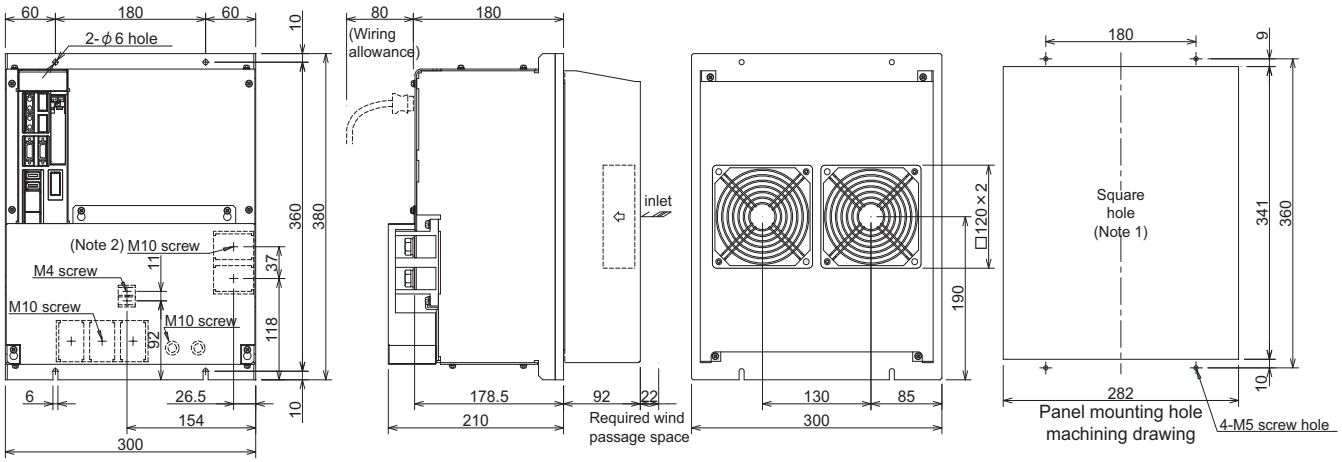
Environmental conditions

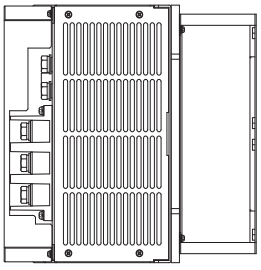
Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s^2 (0.5G) / 49m/s^2 (5G)

Recommended wire

	Terminal name					
	TE1 (U, V, W, earth)		TE2 (L+, L-)		TE3 (L11, L21)	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	-	-	Bar enclosed		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	80	3/0			2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	80	3/0			1.25 to 2	16 to 14

Outline dimension drawings [Unit : mm]



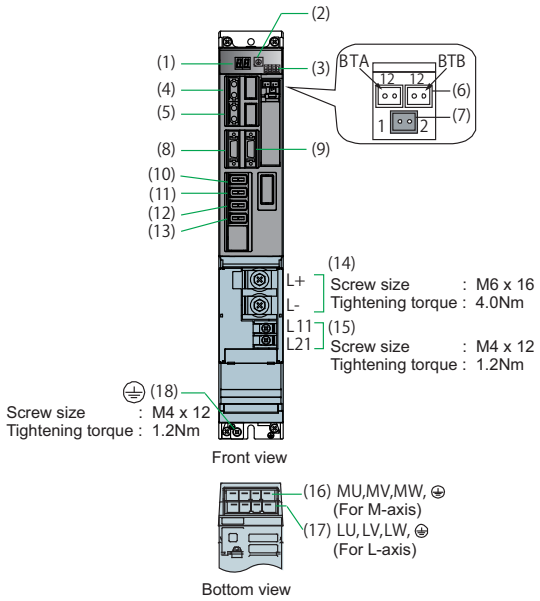


(Note 1) Attach packing around the square hole to ensure a seal.
(Note 2) DC connection bar is required.
Always install a lage capacity drive unit in the left side of power supply unit,and connect with DC connection bar.

CAUTION
1.Design the inlet so that it is the position of the cooling fan.
2.Make the inlet and exhaust size more than the area that is a total of the cooling fan area.

Spindle drive unit

MDS-D-SP2-2020



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SWL	Axis No. setting switch
(3)	SW1	Unused axis setting switch
(4)	CN1A	NC or master axis optical communication connector
(5)	CN1B	Slave axis optical communication connector
(6)		(Unused)
(7)	BT1	For connecting battery built-in drive unit ER6V-C119B
(8)	CN9	(Unused)
(9)	CN4	Power supply communication connector
(10)	CN2L	Motor side encoder connection connector (L-axis) 5V power supply capacity: 0.35A
(11)	CN3L	Spindle side encoder connection connector (L-axis) 5V power supply capacity: 0.35A
(12)	CN2M	Motor side encoder connection connector (M-axis) 5V power supply capacity: 0.35A
(13)	CN3M	Spindle side encoder connection connector (M-axis) 5V power supply capacity: 0.35A
(14)	TE2	Main circuit power supply input terminal (DC input)
(15)	TE3	Control power input terminal (single-phase AC input)
(16)	TE1	Motor power supply output connector (M-axis, 3-phase AC output)
(17)		Motor power supply output connector (L-axis, 3-phase AC output)
(18)	PE	Grounding terminal Note that TE1 connector is used for the motor grounding.

Specifications

Item		Specifications	
		L	M
Nominal maximum current(peak)[A]		20	20
Output	Rated voltage[V]	155AC	
	Rated current[A]	4.5	4.5
Input	Rated voltage[V]	270 to 311DC	
	Rated current[A]	14	
Control power	Frequency[Hz]	50 / 60	
	Tolerable frequency fluctuation[%]	±3% max	
	Voltage(50Hz)[V]	200AC	
	Voltage(60Hz)[V]	200 to 230AC	
	Tolerable voltage fluctuation[%]	+10%, -15%	
	Max. current[A]	0.2	
	Max. rush current[A]	30	
	Max. rush conductivity time[ms]	6	
Max. earth leakage current[mA]		15	15
Braking		Regenerative braking	
Heating value	Inside panel[W]	28	
	Outside panel[W]	62	
Cooling method		Forced air cooling	
Mass[kg]		4.5	

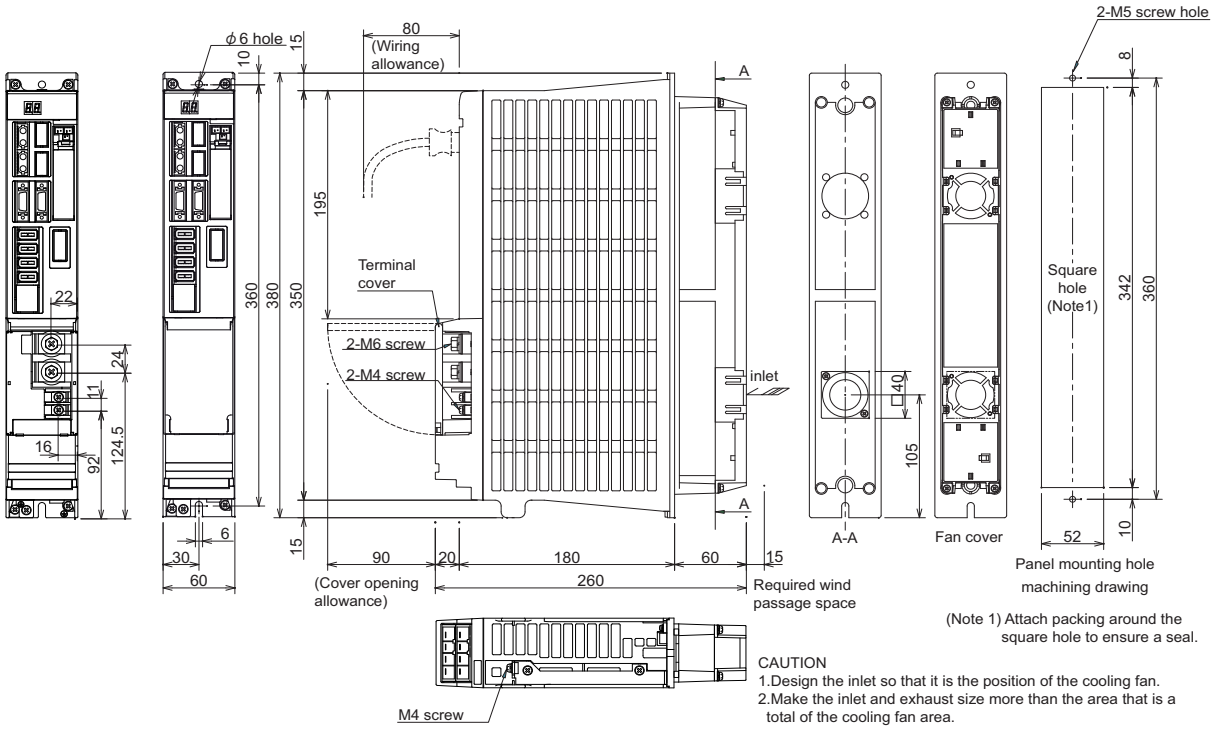
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s^2 (0.5G) / 49m/s^2 (5G)

Recommended wire

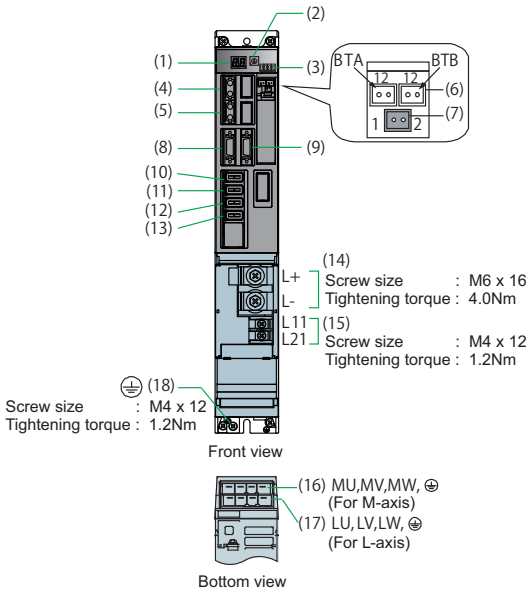
	Terminal name					
	TE1 (U, V, W, earth) The values inside of ( ) are M side		TE2 (L+, L-)		TE3(L11, L21, L12, L22, MC1)	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	2 (2)	14 (14)	Match with TE2 of selected power supply unit		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	2 (2)	14 (14)			2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	2 (2)	14 (14)			1.25 to 2	16 to 14

Outline dimension drawings [Unit : mm]



Spindle drive unit

MDS-D-SP2-4020



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SWL	Axis No. setting switch
(3)	SW1	Unused axis setting switch
(4)	CN1A	NC or master axis optical communication connector
(5)	CN1B	Slave axis optical communication connector
(6)		(Unused)
(7)	BT1	For connecting battery built-in drive unit ER6V-C119B
(8)	CN9	(Unused)
(9)	CN4	Power supply communication connector
(10)	CN2L	Motor side encoder connection connector (L-axis) 5V power supply capacity: 0.35A
(11)	CN3L	Spindle side encoder connection connector (L-axis) 5V power supply capacity: 0.35A
(12)	CN2M	Motor side encoder connection connector (M-axis) 5V power supply capacity: 0.35A
(13)	CN3M	Spindle side encoder connection connector (M-axis) 5V power supply capacity: 0.35A
(14)	TE2	Main circuit power supply input terminal (DC input)
(15)	TE3	Control power input terminal (single-phase AC input)
(16)	TE1	Motor power supply output connector (M-axis, 3-phase AC output)
(17)		Motor power supply output connector (L-axis, 3-phase AC output)
(18)	PE	Grounding terminal Note that TE1 connector is used for the motor grounding.

Specifications

Item		Specifications	
		L	M
Nominal maximum current(peak)[A]		40	20
Output	Rated voltage[V]	155AC	
	Rated current[A]	10	4.5
Input	Rated voltage[V]	270 to 311DC	
	Rated current[A]	20	
Control power	Frequency[Hz]	50 / 60	
	Tolerable frequency fluctuation[%]	±3% max	
	Voltage(50Hz)[V]	200AC	
	Voltage(60Hz)[V]	200 to 230AC	
	Tolerable voltage fluctuation[%]	+10%, -15%	
	Max. current[A]	0.2	
	Max. rush current[A]	30	
	Max. rush conductivity time[ms]	6	
Max. earth leakage current[mA]		15	15
Braking		Regenerative braking	
Heating value	Inside panel[W]	33	
	Outside panel[W]	96	
Cooling method		Forced air cooling	
Mass[kg]		4.5	

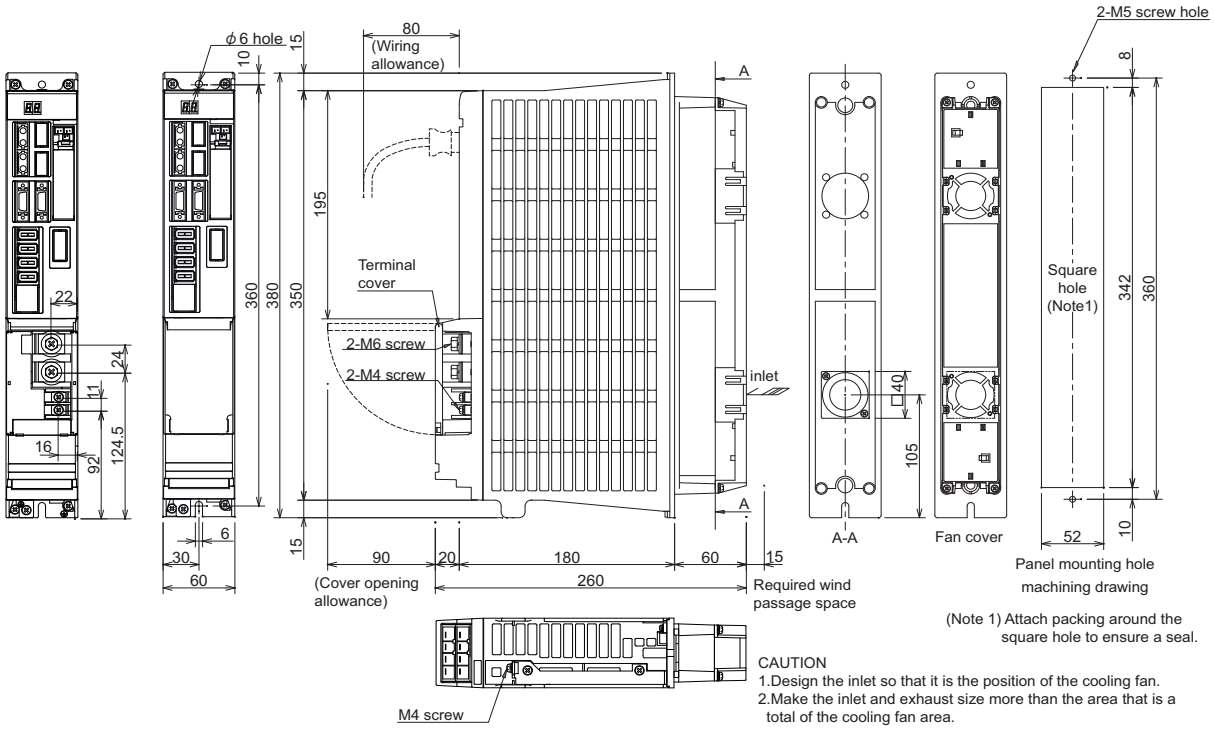
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s^2 (0.5G) / 49m/s^2 (5G)

Recommended wire

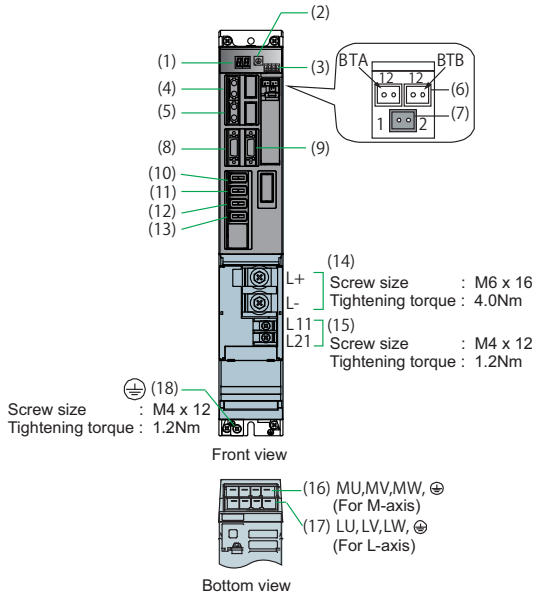
	Terminal name					
	TE1 (U, V, W, earth) The values inside of ( ) are M side		TE2 (L+, L-)		TE3(L11, L21, L12, L22, MC1)	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	2 (2)	14 (14)	Match with TE2 of selected power supply unit		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	2 (2)	14 (14)			2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	2 (2)	14 (14)			1.25 to 2	16 to 14

Outline dimension drawings [Unit : mm]



Spindle drive unit

MDS-D-SP2-4040S



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SWL	Axis No. setting switch
(3)	SW1	Unused axis setting switch
(4)	CN1A	NC or master axis optical communication connector
(5)	CN1B	Slave axis optical communication connector
(6)		(Unused)
(7)	BT1	For connecting battery built-in drive unit ER6V-C119B
(8)	CN9	(Unused)
(9)	CN4	Power supply communication connector
(10)	CN2L	Motor side encoder connection connector (L-axis) 5V power supply capacity: 0.35A
(11)	CN3L	Spindle side encoder connection connector (L-axis) 5V power supply capacity: 0.35A
(12)	CN2M	Motor side encoder connection connector (M-axis) 5V power supply capacity: 0.35A
(13)	CN3M	Spindle side encoder connection connector (M-axis) 5V power supply capacity: 0.35A
(14)	TE2	Main circuit power supply input terminal (DC input)
(15)	TE3	Control power input terminal (single-phase AC input)
(16)	TE1	Motor power supply output connector (M-axis, 3-phase AC output)
(17)		Motor power supply output connector (L-axis, 3-phase AC output)
(18)	PE	Grounding terminal Note that TE1 connector is used for the motor grounding.

Specifications

Item		Specifications	
		L	M
Nominal maximum current(peak)[A]		40	40
Output	Rated voltage[V]	155AC	
	Rated current[A]	10	10
Input	Rated voltage[V]	270 to 311DC	
	Rated current[A]	26	
Control power	Frequency[Hz]	50 / 60	
	Tolerable frequency fluctuation[%]	±3% max	
	Voltage(50Hz)[V]	200AC	
	Voltage(60Hz)[V]	200 to 230AC	
	Tolerable voltage fluctuation[%]	+10%, -15%	
	Max. current[A]	0.2	
	Max. rush current[A]	30	
	Max. rush conductivity time[ms]	6	
Max. earth leakage current[mA]		15	15
Braking		Regenerative braking	
Heating value	Inside panel[W]	38	
	Outside panel[W]	130	
Cooling method		Forced air cooling	
Mass[kg]		4.5	

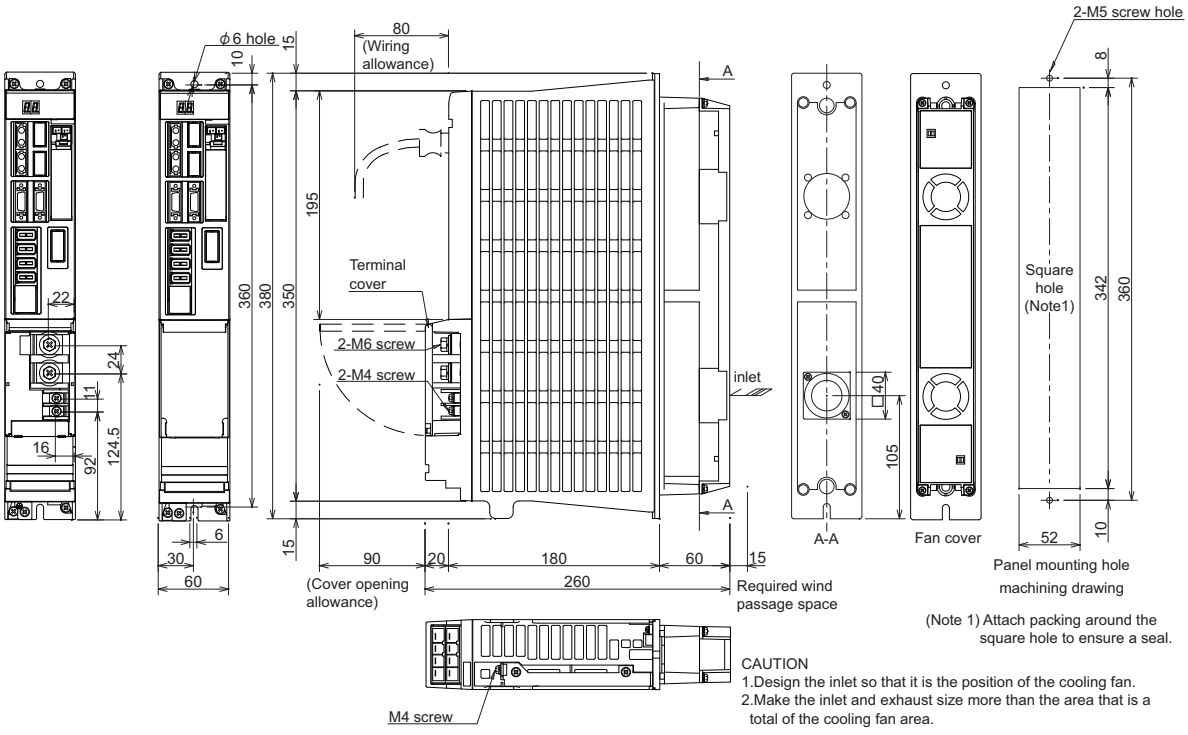
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s^2 (0.5G) / 49m/s^2 (5G)

Recommended wire

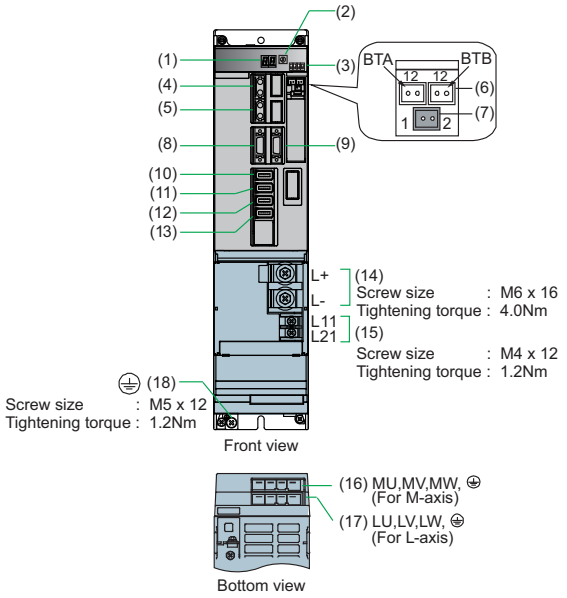
	Terminal name					
	TE1 (U, V, W, earth) The values inside of ( ) are M side		TE2 (L+, L-)		TE3(L11, L21, L12, L22, MC1)	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	2 (2)	14 (14)	Match with TE2 of selected power supply unit		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	2 (2)	14 (14)			2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	2 (2)	14 (14)			1.25 to 2	16 to 14

Outline dimension drawings [Unit : mm]



Spindle drive unit

MDS-D-SP2-4040



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SWL	Axis No. setting switch
(3)	SW1	Unused axis setting switch
(4)	CN1A	NC or master axis optical communication connector
(5)	CN1B	Slave axis optical communication connector
(6)		(Unused)
(7)	BT1	For connecting battery built-in drive unit ER6V-C119B
(8)	CN9	(Unused)
(9)	CN4	Power supply communication connector
(10)	CN2L	Motor side encoder connection connector (L-axis) 5V power supply capacity: 0.35A
(11)	CN3L	Spindle side encoder connection connector (L-axis) 5V power supply capacity: 0.35A
(12)	CN2M	Motor side encoder connection connector (M-axis) 5V power supply capacity: 0.35A
(13)	CN3M	Spindle side encoder connection connector (M-axis) 5V power supply capacity: 0.35A
(14)	TE2	Main circuit power supply input terminal (DC input)
(15)	TE3	Control power input terminal (single-phase AC input)
(16)	TE1	Motor power supply output connector (M-axis, 3-phase AC output)
(17)		Motor power supply output connector (L-axis, 3-phase AC output)
(18)	PE	Grounding terminal Note that TE1 connector is used for the motor grounding.

Specifications

Item		Specifications	
		L	M
Nominal maximum current(peak)[A]		40	40
Output	Rated voltage[V]	155AC	
	Rated current[A]	10	10
Input	Rated voltage[V]	270 to 311DC	
	Rated current[A]	26	
Control power	Frequency[Hz]	50 / 60	
	Tolerable frequency fluctuation[%]	±3% max	
	Voltage(50Hz)[V]	200AC	
	Voltage(60Hz)[V]	200 to 230AC	
	Tolerable voltage fluctuation[%]	+10%, -15%	
	Max. current[A]	0.2	
	Max. rush current[A]	30	
	Max. rush conductivity time[ms]	6	
Max. earth leakage current[mA]		15	15
Braking		Regenerative braking	
Heating value	Inside panel[W]	38	
	Outside panel[W]	130	
Cooling method		Forced air cooling	
Mass[kg]		5.2	

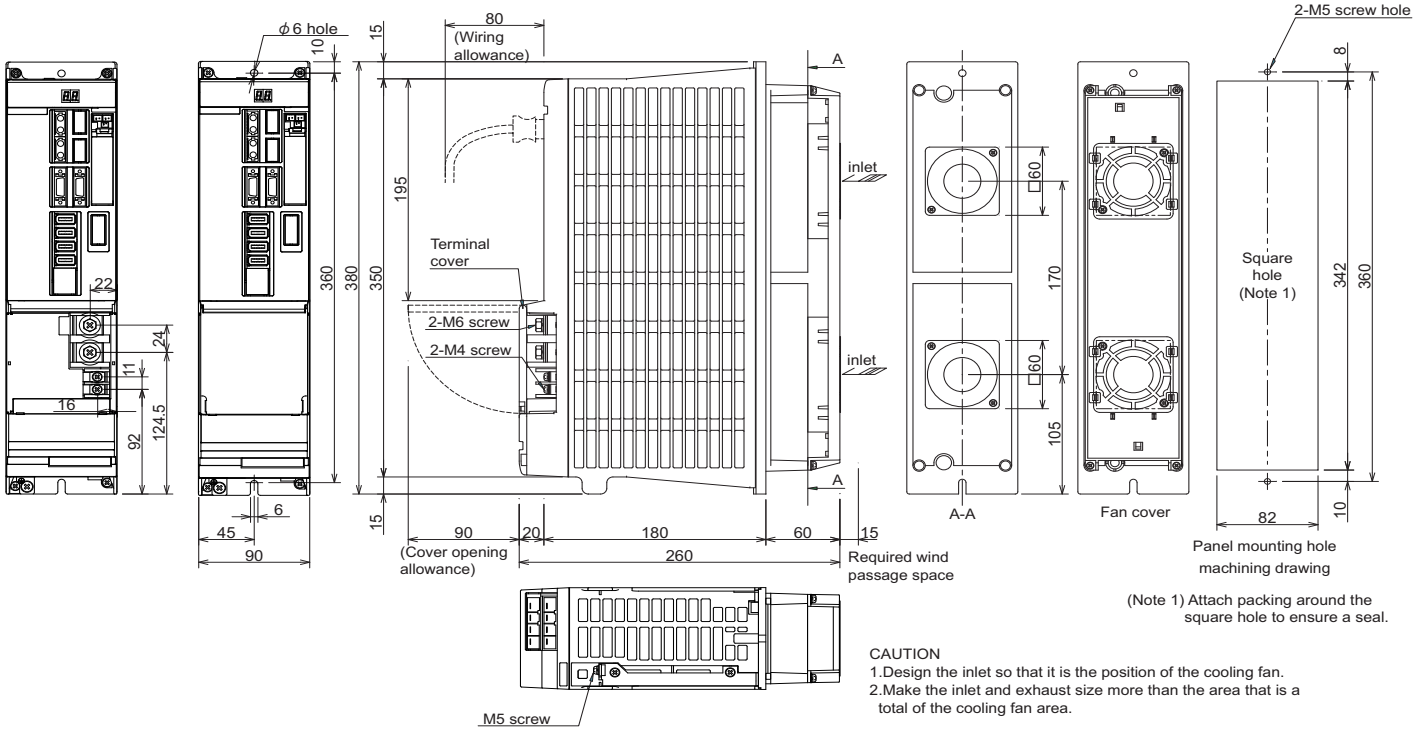
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s^2 (0.5G) / 49m/s^2 (5G)

Recommended wire

	Terminal name					
	TE1 (U, V, W, earth) The values inside of ( ) are M side		TE2 (L+, L-)		TE3(L11, L21, L12, L22, MC1)	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	2 (2)	14 (14)	Match with TE2 of selected power supply unit		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	2 (2)	14 (14)			2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	2 (2)	14 (14)			1.25 to 2	16 to 14

Outline dimension drawings [Unit : mm]

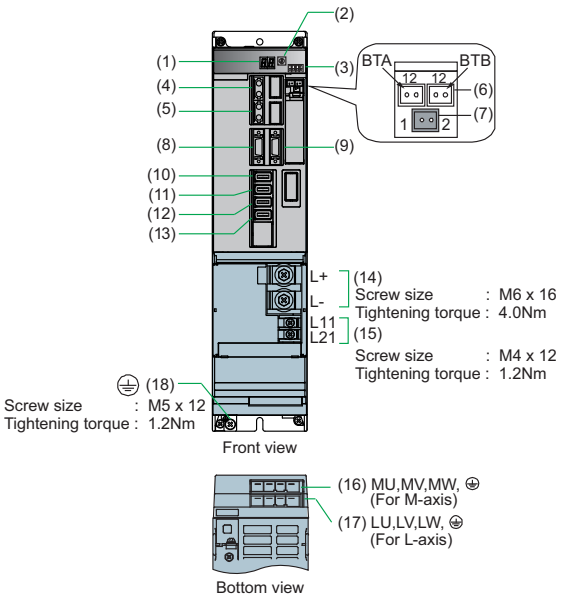


(Note 1) Attach packing around the square hole to ensure a seal.

CAUTION
1.Design the inlet so that it is the position of the cooling fan.
2.Make the inlet and exhaust size more than the area that is a total of the cooling fan area.

Spindle drive unit

MDS-D-SP2-8040



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SWL	Axis No. setting switch
(3)	SW1	Unused axis setting switch
(4)	CN1A	NC or master axis optical communication connector
(5)	CN1B	Slave axis optical communication connector
(6)		(Unused)
(7)	BT1	For connecting battery built-in drive unit ER6V-C119B
(8)	CN9	(Unused)
(9)	CN4	Power supply communication connector
(10)	CN2L	Motor side encoder connection connector (L-axis) 5V power supply capacity: 0.35A
(11)	CN3L	Spindle side encoder connection connector (L-axis) 5V power supply capacity: 0.35A
(12)	CN2M	Motor side encoder connection connector (M-axis) 5V power supply capacity: 0.35A
(13)	CN3M	Spindle side encoder connection connector (M-axis) 5V power supply capacity: 0.35A
(14)	TE2	Main circuit power supply input terminal (DC input)
(15)	TE3	Control power input terminal (single-phase AC input)
(16)	TE1	Motor power supply output connector (M-axis, 3-phase AC output)
(17)		Motor power supply output connector (L-axis, 3-phase AC output)
(18)	PE	Grounding terminal Note that TE1 connector is used for the motor grounding.

Specifications

Item		Specifications	
		L	M
Nominal maximum current(peak)[A]		80	40
Output	Rated voltage[V]	155AC	
	Rated current[A]	18	10
Input	Rated voltage[V]	270 to 311DC	
	Rated current[A]	33	
Control power	Frequency[Hz]	50 / 60	
	Tolerable frequency fluctuation[%]	±3% max	
	Voltage(50Hz)[V]	200AC	
	Voltage(60Hz)[V]	200 to 230AC	
	Tolerable voltage fluctuation[%]	+10%, -15%	
	Max. current[A]	0.2	
	Max. rush current[A]	30	
	Max. rush conductivity time[ms]	6	
Max. earth leakage current[mA]		15	15
Braking		Regenerative braking	
Heating value	Inside panel[W]	46	
	Outside panel[W]	186	
Cooling method		Forced air cooling	
Mass[kg]		5.2	

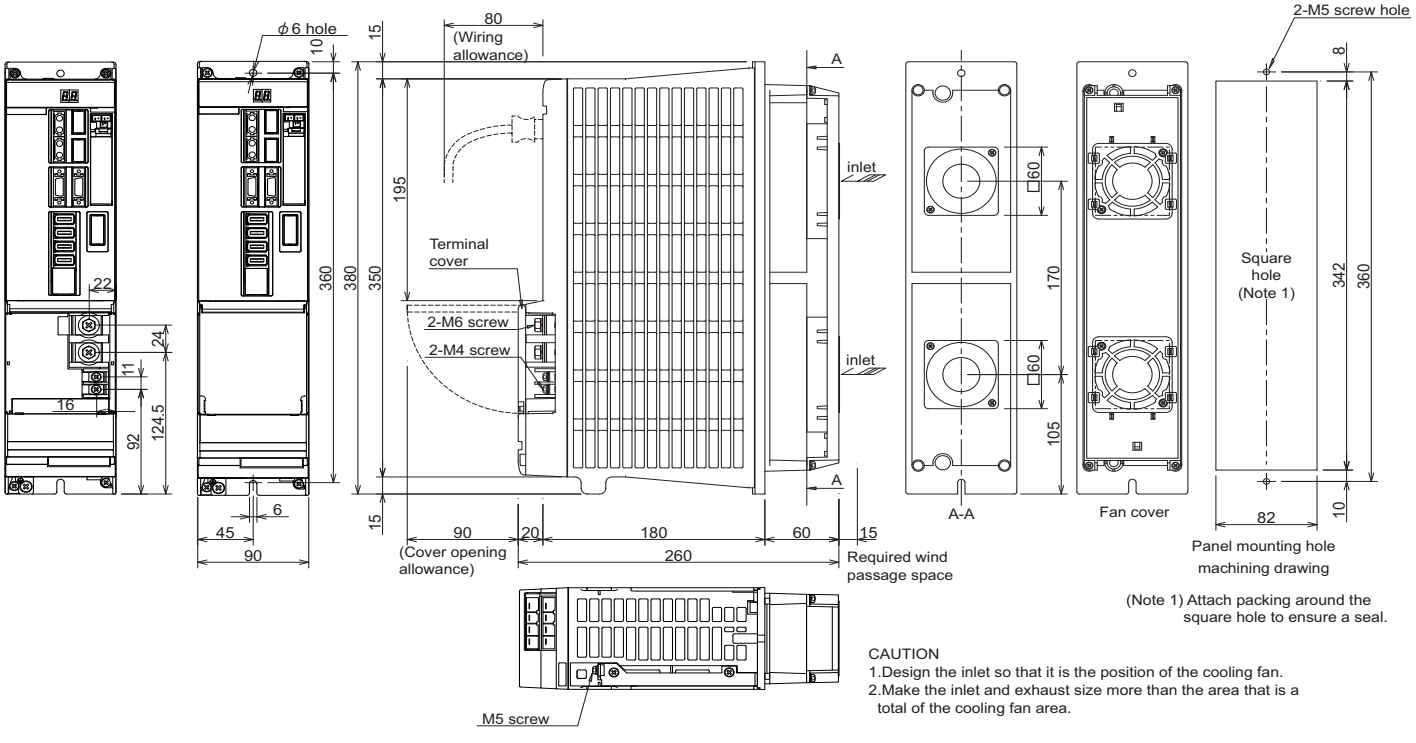
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s^2 (0.5G) / 49m/s^2 (5G)

Recommended wire

	Terminal name					
	TE1 (U, V, W, earth) The values inside of ( ) are M side		TE2 (L+, L-)		TE3(L11, L21, L12, L22, MC1)	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	5.5 (2)	10 (14)	Match with TE2 of selected power supply unit		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	3.5 (2)	12 (14)			2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	3.5 (2)	12 (14)			1.25 to 2	16 to 14

Outline dimension drawings [Unit : mm]

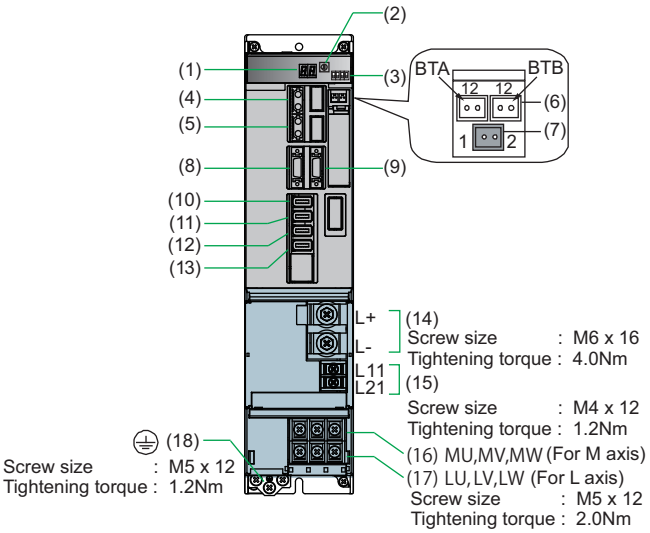


(Note 1) Attach packing around the square hole to ensure a seal.

CAUTION
1.Design the inlet so that it is the position of the cooling fan.
2.Make the inlet and exhaust size more than the area that is a total of the cooling fan area.

Spindle drive unit

MDS-D-SP2-16080S



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SWL	Axis No. setting switch
(3)	SW1	Unused axis setting switch
(4)	CN1A	NC or master axis optical communication connector
(5)	CN1B	Slave axis optical communication connector
(6)		(Unused)
(7)	BT1	For connecting battery built-in drive unit ER6V-C119B
(8)	CN9	(Unused)
(9)	CN4	Power supply communication connector
(10)	CN2L	Motor side encoder connection connector (L-axis) 5V power supply capacity: 0.35A
(11)	CN3L	Spindle side encoder connection connector (L-axis) 5V power supply capacity: 0.35A
(12)	CN2M	Motor side encoder connection connector (M-axis) 5V power supply capacity: 0.35A
(13)	CN3M	Spindle side encoder connection connector (M-axis) 5V power supply capacity: 0.35A
(14)	TE2	Main circuit power supply input terminal (DC input)
(15)	TE3	Control power input terminal (single-phase AC input)
(16)	TE1	Motor power supply output terminal (M-axis, 3-phase AC output)
(17)		Motor power supply output terminal (L-axis, 3-phase AC output)
(18)	PE	Grounding terminal

Specifications

Item		Specifications	
		L	M
Nominal maximum current(peak)[A]		160	80
Output	Rated voltage[V]	155AC	
	Rated current[A]	54	18
Input	Rated voltage[V]	270 to 311DC	
	Rated current[A]	61	
Control power	Frequency[Hz]	50 / 60	
	Tolerable frequency fluctuation[%]	±3% max	
	Voltage(50Hz)[V]	200AC	
	Voltage(60Hz)[V]	200 to 230AC	
	Tolerable voltage fluctuation[%]	+10%, -15%	
	Max. current[A]	0.2	
	Max. rush current[A]	30	
	Max. rush conductivity time[ms]	6	
Max. earth leakage current[mA]		15	15
Braking		Regenerative braking	
Heating value	Inside panel[W]	70	
	Outside panel[W]	358	
Cooling method		Forced air cooling	
Mass[kg]		5.2	

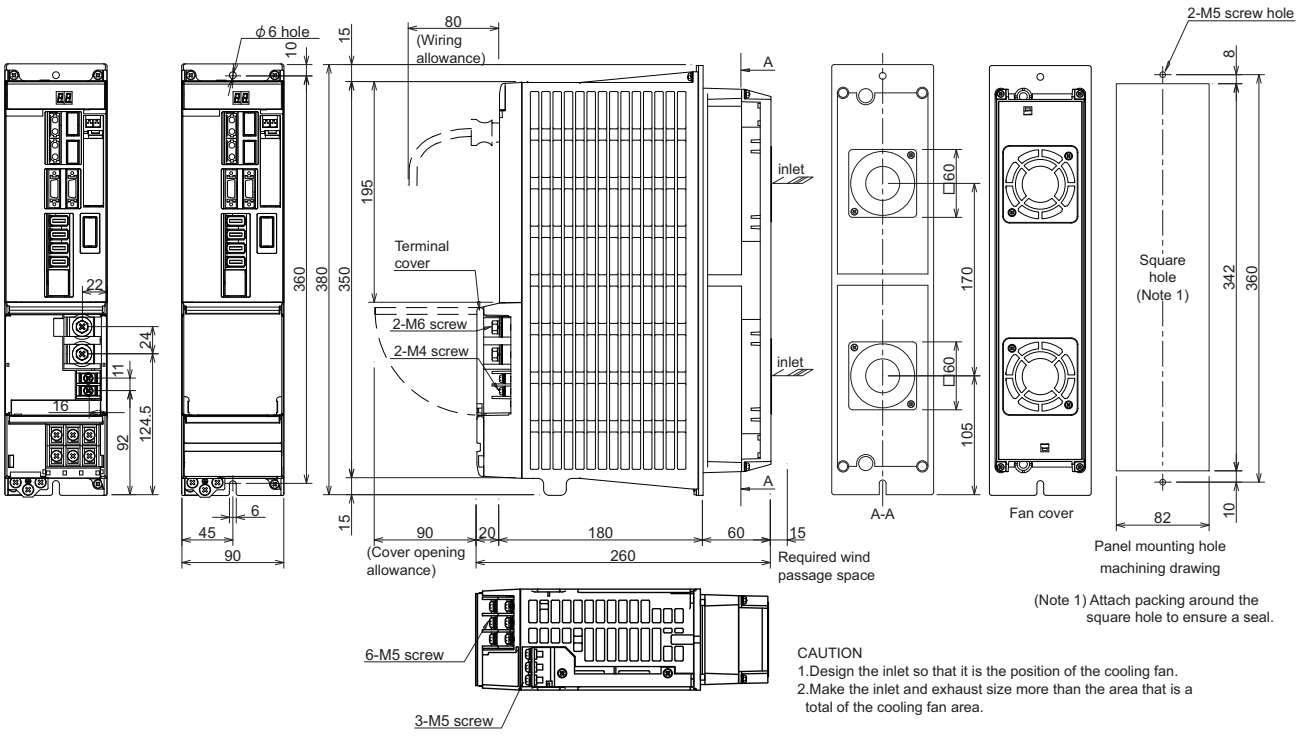
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	$4.9m/s^2$ (0.5G) / $49m/s^2$ (5G)

Recommended wire

	Terminal name					
	TE1 (U, V, W, earth) The values inside of ( ) are M side		TE2 (L+, L-)		TE3(L11, L21, L12, L22, MC1)	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	22 (5.5)	4 (10)	Match with TE2 of selected power supply unit		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	14 (3.5)	6 (12)			2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	8 (3.5)	8 (12)			1.25 to 2	16 to 14

Outline dimension drawings [Unit : mm]

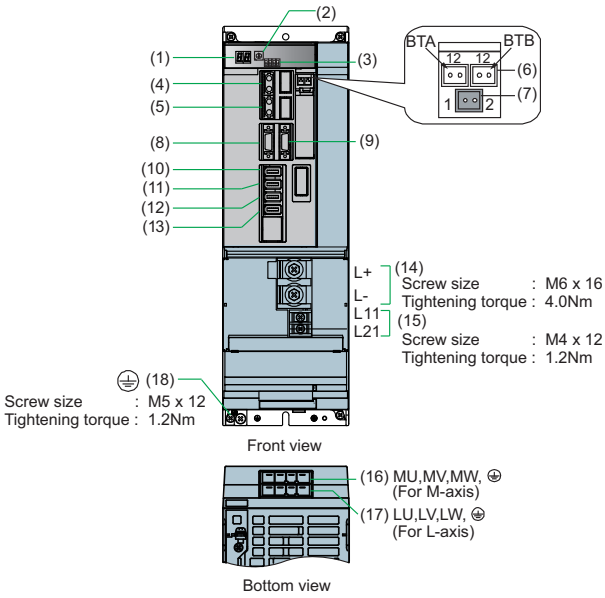


(Note 1) Attach packing around the square hole to ensure a seal.

CAUTION
1.Design the inlet so that it is the position of the cooling fan.
2.Make the inlet and exhaust size more than the area that is a total of the cooling fan area.

Spindle drive unit

MDS-D-SP2-8080



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SWL	Axis No. setting switch
(3)	SW1	Unused axis setting switch
(4)	CN1A	NC or master axis optical communication connector
(5)	CN1B	Slave axis optical communication connector
(6)		(Unused)
(7)	BT1	For connecting battery built-in drive unit ER6V-C119B
(8)	CN9	(Unused)
(9)	CN4	Power supply communication connector
(10)	CN2L	Motor side encoder connection connector (L-axis) 5V power supply capacity: 0.35A
(11)	CN3L	Spindle side encoder connection connector (L-axis) 5V power supply capacity: 0.35A
(12)	CN2M	Motor side encoder connection connector (M-axis) 5V power supply capacity: 0.35A
(13)	CN3M	Spindle side encoder connection connector (M-axis) 5V power supply capacity: 0.35A
(14)	TE2	Main circuit power supply input terminal (DC input)
(15)	TE3	Control power input terminal (single-phase AC input)
(16)	TE1	Motor power supply output connector (M-axis, 3-phase AC output)
(17)		Motor power supply output connector (L-axis, 3-phase AC output)
(18)	PE	Grounding terminal Note that TE1 connector is used for the motor grounding.

Specifications

Item		Specifications	
		L	M
Nominal maximum current(peak)[A]		80	80
Output	Rated voltage[V]	155AC	
	Rated current[A]	18	18
Input	Rated voltage[V]	270 to 311DC	
	Rated current[A]	40	
Control power	Frequency[Hz]	50 / 60	
	Tolerable frequency fluctuation[%]	±3% max	
	Voltage(50Hz)[V]	200AC	
	Voltage(60Hz)[V]	200 to 230AC	
	Tolerable voltage fluctuation[%]	+10%, -15%	
	Max. current[A]	0.2	
	Max. rush current[A]	30	
	Max. rush conductivity time[ms]	6	
Max. earth leakage current[mA]		15	15
Braking		Regenerative braking	
Heating value	Inside panel[W]	54	
	Outside panel[W]	242	
Cooling method		Forced air cooling	
Mass[kg]		6.5	

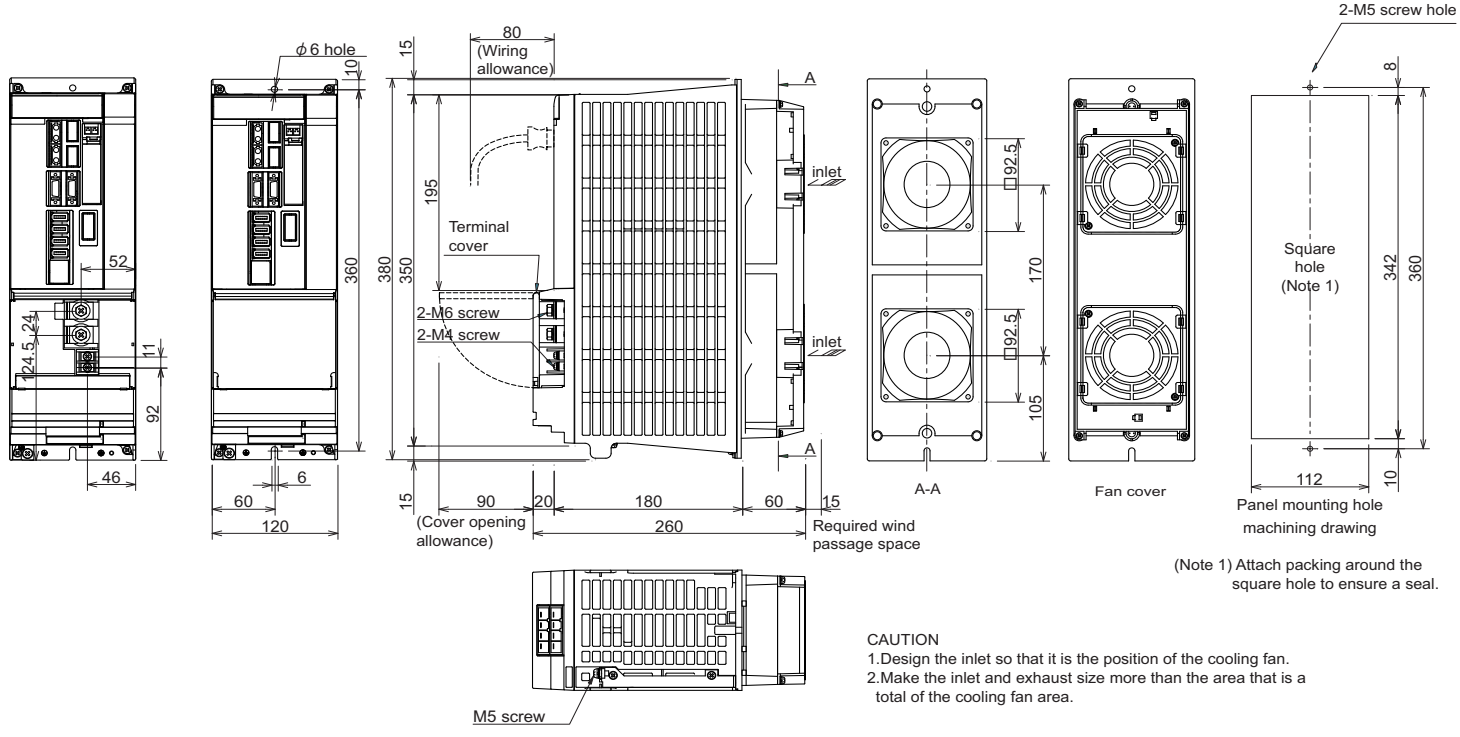
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s^2 (0.5G) / 49m/s^2 (5G)

Recommended wire

	Terminal name					
	TE1 (U, V, W, earth) The values inside of ( ) are M side		TE2 (L+, L-)		TE3(L11, L21, L12, L22, MC1)	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	5.5 (5.5)	10 (10)	Match with TE2 of selected power supply unit		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	3.5 (3.5)	12 (12)			2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	3.5 (3.5)	12 (12)			1.25 to 2	16 to 14

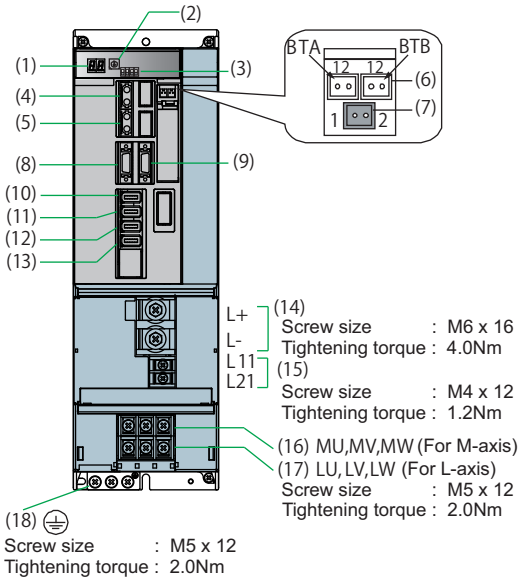
Outline dimension drawings [Unit : mm]



CAUTION
1.Design the inlet so that it is the position of the cooling fan.
2.Make the inlet and exhaust size more than the area that is a total of the cooling fan area.

Spindle drive unit

MDS-D-SP2-16080



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SWL	Axis No. setting switch
(3)	SW1	Unused axis setting switch
(4)	CN1A	NC or master axis optical communication connector
(5)	CN1B	Slave axis optical communication connector
(6)		(Unused)
(7)	BT1	For connecting battery built-in drive unit ER6V-C119B
(8)	CN9	(Unused)
(9)	CN4	Power supply communication connector
(10)	CN2L	Motor side encoder connection connector (L-axis) 5V power supply capacity: 0.35A
(11)	CN3L	Spindle side encoder connection connector (L-axis) 5V power supply capacity: 0.35A
(12)	CN2M	Motor side encoder connection connector (M-axis) 5V power supply capacity: 0.35A
(13)	CN3M	Spindle side encoder connection connector (M-axis) 5V power supply capacity: 0.35A
(14)	TE2	Main circuit power supply input terminal (DC input)
(15)	TE3	Control power input terminal (single-phase AC input)
(16)	TE1	Motor power supply output terminal (M-axis, 3-phase AC output)
(17)		Motor power supply output terminal (L-axis, 3-phase AC output)
(18)	PE	Grounding terminal

Specifications

Item		Specifications	
		L	M
Nominal maximum current(peak)[A]		160	80
Output	Rated voltage[V]	155AC	
	Rated current[A]	54	18
Input	Rated voltage[V]	270 to 311DC	
	Rated current[A]	61	
Control power	Frequency[Hz]	50 / 60	
	Tolerable frequency fluctuation[%]	±3% max	
	Voltage(50Hz)[V]	200AC	
	Voltage(60Hz)[V]	200 to 230AC	
	Tolerable voltage fluctuation[%]	+10%, -15%	
	Max. current[A]	0.2	
	Max. rush current[A]	30	
	Max. rush conductivity time[ms]	6	
Max. earth leakage current[mA]		15	15
Braking		Regenerative braking	
Heating value	Inside panel[W]	70	
	Outside panel[W]	358	
Cooling method		Forced air cooling	
Mass[kg]		6.5	

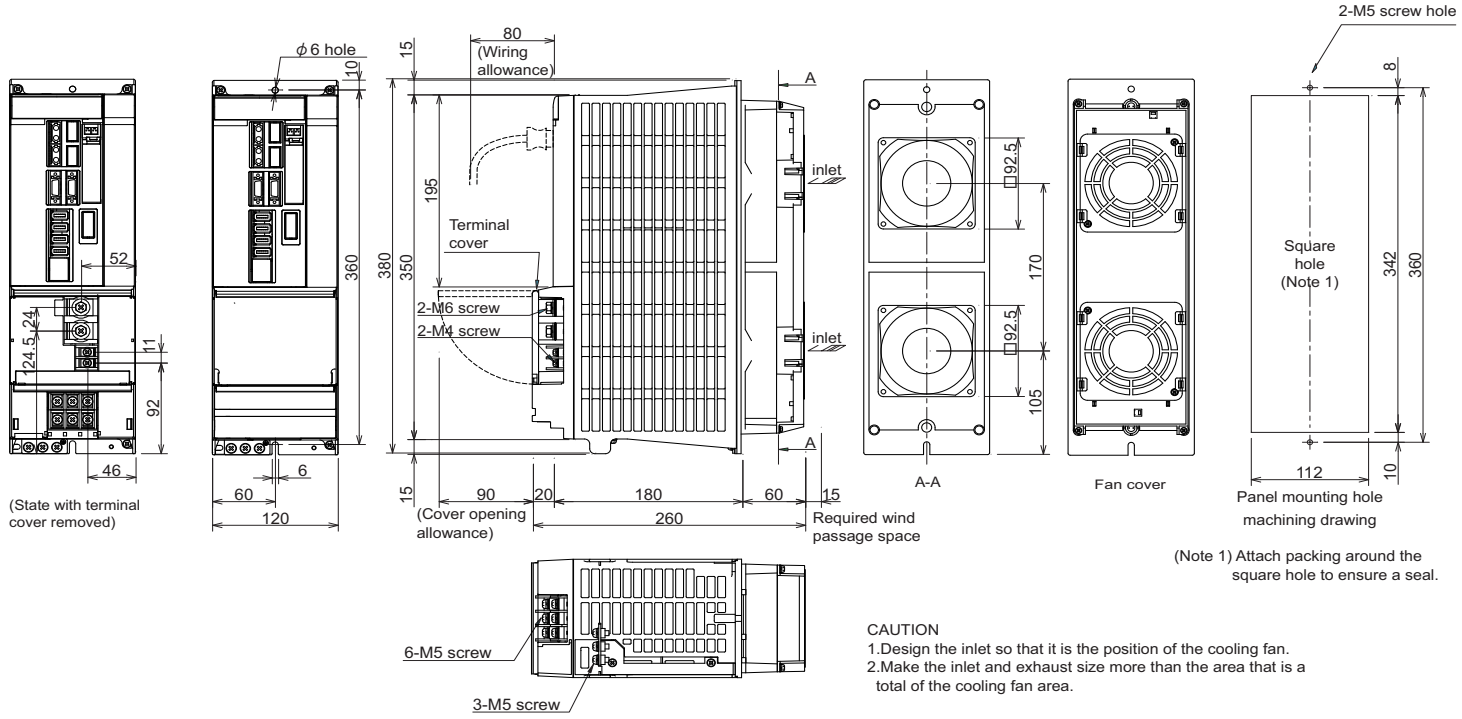
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s^2 (0.5G) / 49m/s^2 (5G)

Recommended wire

	Terminal name					
	TE1 (U, V, W, earth) The values inside of ( ) are M side		TE2 (L+, L-)		TE3(L11, L21, L12, L22, MC1)	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	22 (5.5)	4 (10)	Match with TE2 of selected power supply unit		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	14 (3.5)	6 (12)			2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	8 (3.5)	8 (12)			1.25 to 2	16 to 14

Outline dimension drawings [Unit : mm]

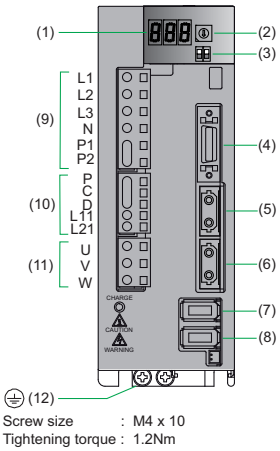


(Note 1) Attach packing around the square hole to ensure a seal.

CAUTION
1.Design the inlet so that it is the position of the cooling fan.
2.Make the inlet and exhaust size more than the area that is a total of the cooling fan area.

Spindle drive unit

MDS-D-SPJ3-075



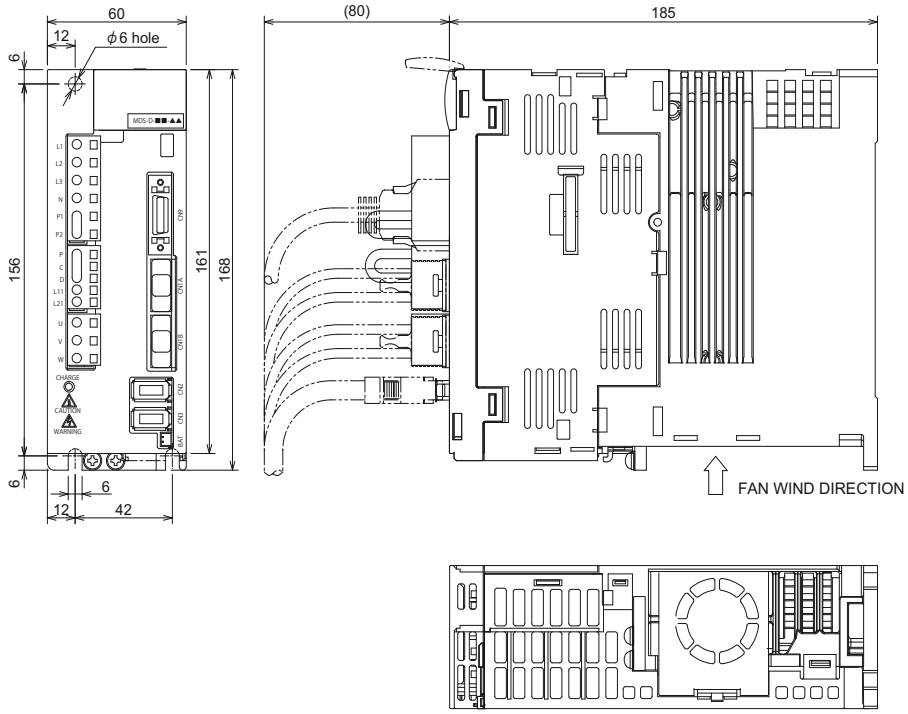
Screw size : M4 x 10
Tightening torque : 1.2Nm

No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SW1	Axis No. setting switch
(3)	SW2	For machine tool builder adjustment: Always OFF (facing bottom)
(4)	CN9	Connector for DIO/analog output
(5)	CN1A	NC or master axis optical communication connector
(6)	CN1B	Slave axis optical communication connector
(7)	CN2	Motor side encoder connection connector
(8)	CN3	Machine side encoder connection connector
(9)	CNP1	L1,L2,L3: Power supply input terminal (3-phase AC input) N: Test terminal for the manufacturer (Do not connect.) P1,P2: not used (short-circuit between the P1 and P2.)
(10)	CNP2	Regenerative resistor connection terminal Control power input terminal (single-phase AC input)
(11)	CNP3	Motor power output terminal (3-phase AC output)
(12)	PE	Grounding terminal

Specifications

Item		Specifications
Rated output[kW]		0.75
Power facility capacity[kVA]		2.0
Output	Rated voltage[V]	155AC
	Rated current[A]	4.5
Input	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±5% max
	Rated voltage(50Hz) [V]	200AC
	Rated voltage(60Hz) [V]	200 to 230AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Rated current[A]	2.6
Control power	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±5% max
	Voltage(50Hz)[V]	200AC
	Voltage(60Hz)[V]	200 to 230AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Max. Current[A]	0.2
	Max. Rush current[A]	30
	Max.Rush conductivity time[ms]	6
Maximum earth leakage current[mA]		15
Braking		Regenerative braking
Main circuit method		Converter with resistor regeneration circuit
Heating value	Inside panel[W]	50
Cooling method		Forced air cooling
Mass[kg]		1.4
Selection example of contactor (option part)		S-T12-AC200V
	Free-air thermal current[A]	20
	Selection current (for 200V input)[A]	6
	Rated output[kW]	0.75
Selection example of circuit protector (option part)		NF30-SW3P-15A
	Rated current[A]	15
	Selection current (for 200V input)[A]	6
	Rated output[kW]	0.75
Regenerative option		Refer to "Regenerative option".

Outline dimension drawings [Unit : mm]



Environmental conditions

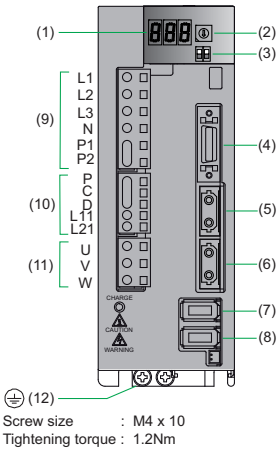
Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s^2 (0.5G) / 49m/s^2 (5G)

Recommended wire

	Terminal name									
	CNP1 (L1, L2, L3, earth)		CNP2 (L11, L21)		CNP3 (U, V, W, earth)		CNP2 (P,C)		Magnetic brake	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	2	14	2	14	2	14	2	14	-	-
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	2	14	2	14	2	14	2	14	-	-
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	2	14	1.25	16	2	14	2	14	-	-

Spindle drive unit

MDS-D-SPJ3-075NA

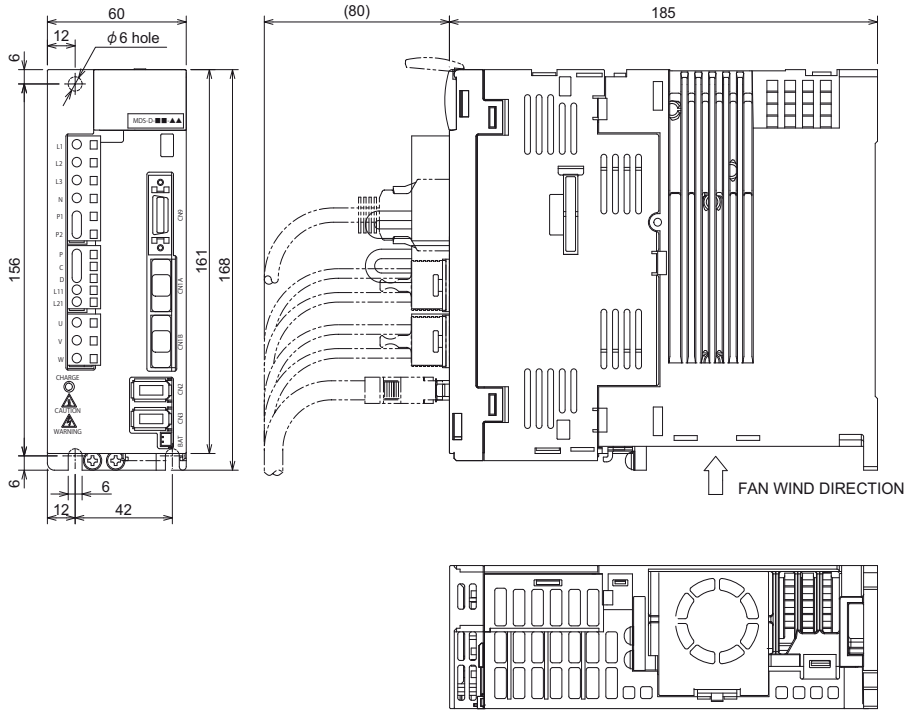


No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SW1	Axis No. setting switch
(3)	SW2	For machine tool builder adjustment: Always OFF (facing bottom)
(4)	CN9	Connector for DIO/analog output
(5)	CN1A	NC or master axis optical communication connector
(6)	CN1B	Slave axis optical communication connector
(7)	CN2	Motor side encoder connection connector
(8)	CN3	Machine side encoder connection connector
(9)	CNP1	L1,L2,L3: Power supply input terminal (3-phase AC input) N: Test terminal for the manufacturer (Do not connect.) P1,P2: not used (short-circuit between the P1 and P2.)
(10)	CNP2	Regenerative resistor connection terminal Control power input terminal (single-phase AC input)
(11)	CNP3	Motor power output terminal (3-phase AC output)
(12)	PE	Grounding terminal

Specifications

Item		Specifications
Rated output[kW]		0.75
Power facility capacity[kVA]		2.0
Output	Rated voltage[V]	155AC
	Rated current[A]	4.5
Input	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±5% max
	Rated voltage(50Hz) [V]	200AC
	Rated voltage(60Hz) [V]	200 to 230AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Rated current[A]	2.6
Control power	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±5% max
	Voltage(50Hz)[V]	200AC
	Voltage(60Hz)[V]	200 to 230AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Max. Current[A]	0.2
	Max. Rush current[A]	30
	Max.Rush conductivity time[ms]	6
Maximum earth leakage current[mA]		15
Braking		Regenerative braking
Main circuit method		Converter with resistor regeneration circuit
Heating value	Inside panel[W]	50
Cooling method		Forced air cooling
Mass[kg]		1.4
Selection example of contactor (option part)		S-T12-AC200V
	Free-air thermal current[A]	20
	Selection current (for 200V input)[A]	6
	Rated output[kW]	0.75
Selection example of circuit protector (option part)		NF30-SW3P-15A
	Rated current[A]	15
	Selection current (for 200V input)[A]	6
	Rated output[kW]	0.75
Regenerative option		Refer to "Regenerative option".

Outline dimension drawings [Unit : mm]



Environmental conditions

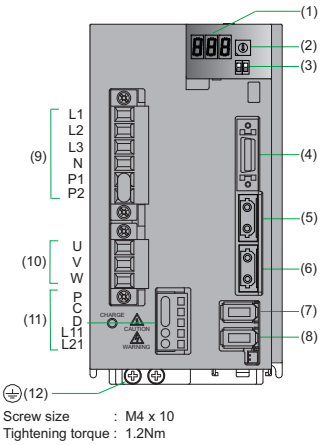
Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s^2 (0.5G) / 49m/s^2 (5G)

Recommended wire

	Terminal name									
	CNP1 (L1, L2, L3, earth)		CNP2 (L11, L21)		CNP3 (U, V, W, earth)		CNP2 (P,C)		Magnetic brake	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	2	14	2	14	2	14	2	14	-	-
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	2	14	2	14	2	14	2	14	-	-
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	2	14	1.25	16	2	14	2	14	-	-

Spindle drive unit

MDS-D-SPJ3-22

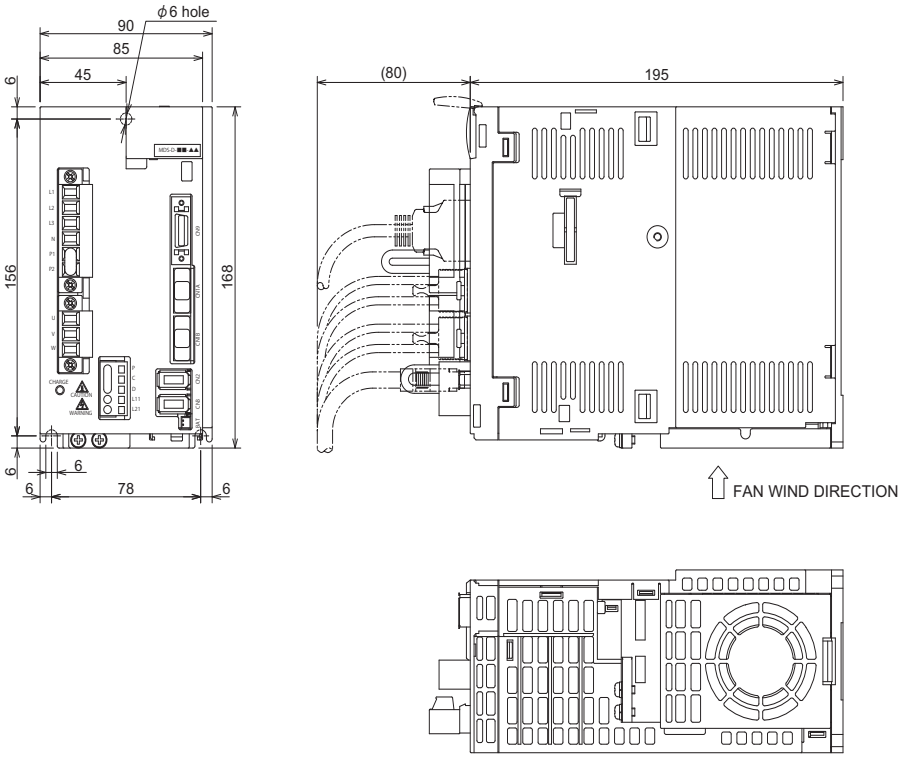


No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SW1	Axis No. setting switch
(3)	SW2	For machine tool builder adjustment: Always OFF (facing bottom)
(4)	CN9	Connector for DIO/analog output
(5)	CN1A	NC or master axis optical communication connector
(6)	CN1B	Slave axis optical communication connector
(7)	CN2	Motor side encoder connection connector
(8)	CN3	Machine side encoder connection connector
(9)	CNP1	L1,L2,L3: Power supply input terminal (3-phase AC input) N: Test terminal for the manufacturer (Do not connect.) P1,P2: not used (short-circuit between the P1 and P2.)
(10)	CNP2	Regenerative resistor connection terminal Control power input terminal (single-phase AC input)
(11)	CNP3	Motor power output terminal (3-phase AC output)
(12)	PE	Grounding terminal

Specifications

Item		Specifications
Rated output[kW]		2.2
Power facility capacity[kVA]		4.0
Output	Rated voltage[V]	155AC
	Rated current[A]	10
Input	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±5% max
	Rated voltage(50Hz) [V]	200AC
	Rated voltage(60Hz) [V]	200 to 230AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Rated current[A]	9.0
Control power	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±5% max
	Voltage(50Hz)[V]	200AC
	Voltage(60Hz)[V]	200 to 230AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Max. Current[A]	0.2
	Max. Rush current[A]	30
	Max.Rush conductivity time[ms]	6
Maximum earth leakage current[mA]		15
Braking		Regenerative braking
Main circuit method		Converter with resistor regeneration circuit
Heating value	Inside panel[W]	90
Cooling method		Forced air cooling
Mass[kg]		2.1
Selection example of contactor (option part)		S-T18-AC200V
	Free-air thermal current[A]	25
	Selection current (for 200V input)[A]	9
	Rated output[kW]	2.2
Selection example of circuit protector (option part)		NF30-SW3P-20A
	Rated current[A]	20
	Selection current (for 200V input)[A]	9
	Rated output[kW]	2.2
Regenerative option		Refer to "Regenerative option".

Outline dimension drawings [Unit : mm]



Environmental conditions

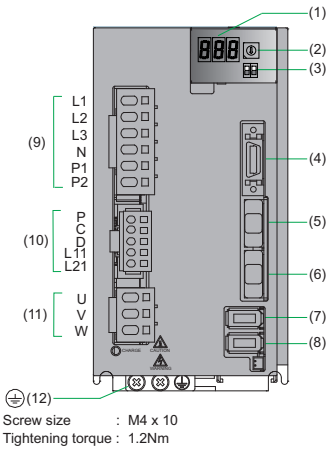
Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s^2 (0.5G) / 49m/s^2 (5G)

Recommended wire

	Terminal name									
	CNP1 (L1, L2, L3, earth)		CNP2 (L11, L21)		CNP3 (U, V, W, earth)		CNP2 (P,C)		Magnetic brake	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	2	14	2	14	2	14	2	14	-	-
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	2	14	2	14	2	14	2	14	-	-
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	2	14	1.25	16	2	14	2	14	-	-

Spindle drive unit

MDS-D-SPJ3-22NA



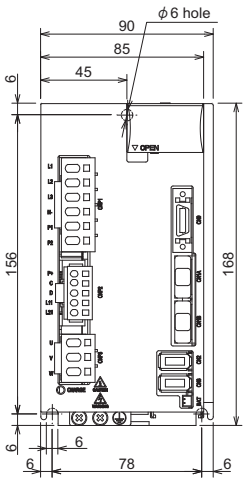
Screw size : M4 x 10
Tightening torque : 1.2Nm

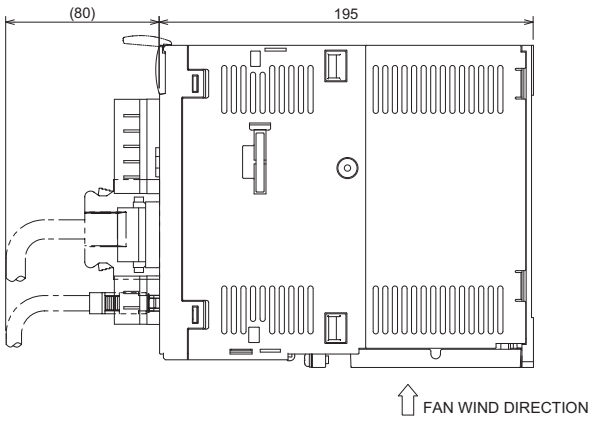
No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SW1	Axis No. setting switch
(3)	SW2	For machine tool builder adjustment: Always OFF (facing bottom)
(4)	CN9	Connector for DIO/analog output
(5)	CN1A	NC or master axis optical communication connector
(6)	CN1B	Slave axis optical communication connector
(7)	CN2	Motor side encoder connection connector
(8)	CN3	Machine side encoder connection connector
(9)	CNP1	L1,L2,L3: Power supply input terminal (3-phase AC input) N: Test terminal for the manufacturer (Do not connect.) P1,P2: not used (short-circuit between the P1 and P2.)
(10)	CNP2	Regenerative resistor connection terminal Control power input terminal (single-phase AC input)
(11)	CNP3	Motor power output terminal (3-phase AC output)
(12)	PE	Grounding terminal

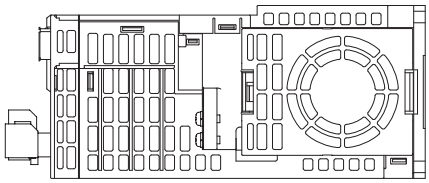
Specifications

Item		Specifications
Rated output[kW]		2.2
Power facility capacity[kVA]		4.0
Output	Rated voltage[V]	155AC
	Rated current[A]	10
Input	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±5% max
	Rated voltage(50Hz) [V]	200AC
	Rated voltage(60Hz) [V]	200 to 230AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Rated current[A]	9.0
Control power	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±5% max
	Voltage(50Hz)[V]	200AC
	Voltage(60Hz)[V]	200 to 230AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Max. Current[A]	0.2
	Max. Rush current[A]	30
	Max.Rush conductivity time[ms]	6
Maximum earth leakage current[mA]		15
Braking		Regenerative braking
Main circuit method		Converter with resistor regeneration circuit
Heating value	Inside panel[W]	90
Cooling method		Forced air cooling
Mass[kg]		2.1
Selection example of contactor (option part)		S-T18-AC200V
	Free-air thermal current[A]	25
	Selection current (for 200V input)[A]	9
	Rated output[kW]	2.2
Selection example of circuit protector (option part)		NF30-SW3P-20A
	Rated current[A]	20
	Selection current (for 200V input)[A]	9
	Rated output[kW]	2.2
Regenerative option		Refer to "Regenerative option".

Outline dimension drawings [Unit : mm]







Environmental conditions

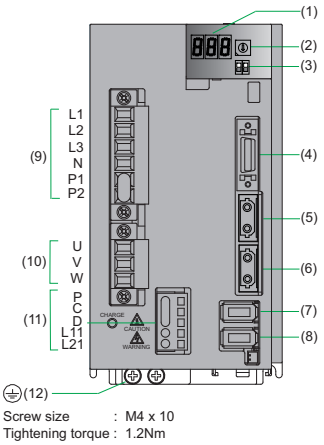
Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s^2 (0.5G) / 49m/s^2 (5G)

Recommended wire

	Terminal name									
	CNP1 (L1, L2, L3, earth)		CNP2 (L11, L21)		CNP3 (U, V, W, earth)		CNP2 (P,C)		Magnetic brake	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	2	14	2	14	2	14	2	14	-	-
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	2	14	2	14	2	14	2	14	-	-
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	2	14	1.25	16	2	14	2	14	-	-

Spindle drive unit

MDS-D-SPJ3-37

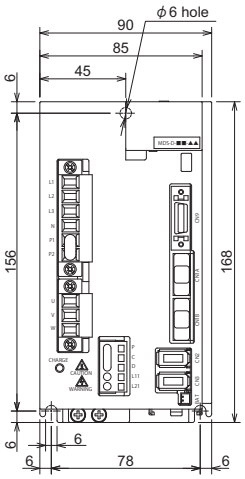


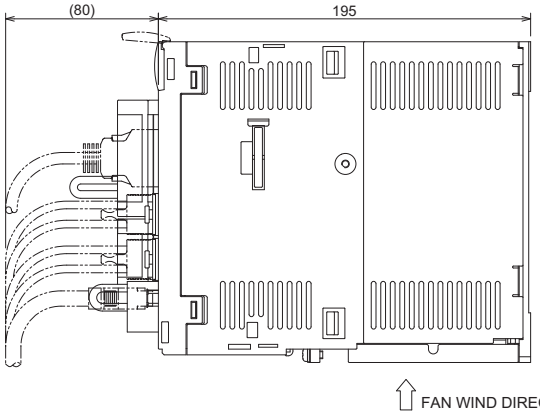
No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SW1	Axis No. setting switch
(3)	SW2	For machine tool builder adjustment: Always OFF (facing bottom)
(4)	CN9	Connector for DIO/analog output
(5)	CN1A	NC or master axis optical communication connector
(6)	CN1B	Slave axis optical communication connector
(7)	CN2	Motor side encoder connection connector
(8)	CN3	Machine side encoder connection connector
(9)	CNP1	L1,L2,L3: Power supply input terminal (3-phase AC input) N: Test terminal for the manufacturer (Do not connect.) P1,P2: not used (short-circuit between the P1 and P2.)
(10)	CNP2	Regenerative resistor connection terminal Control power input terminal (single-phase AC input)
(11)	CNP3	Motor power output terminal (3-phase AC output)
(12)	PE	Grounding terminal

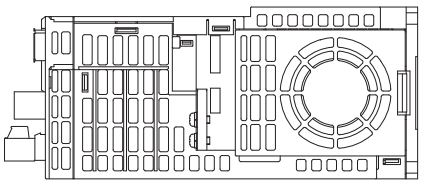
Specifications

Item		Specifications
Rated output[kW]		3.7
Power facility capacity[kVA]		7.0
Output	Rated voltage[V]	155AC
	Rated current[A]	11
Input	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±5% max
	Rated voltage(50Hz) [V]	200AC
	Rated voltage(60Hz) [V]	200 to 230AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Rated current[A]	10.5
Control power	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±5% max
	Voltage(50Hz)[V]	200AC
	Voltage(60Hz)[V]	200 to 230AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Max. Current[A]	0.2
	Max. Rush current[A]	30
	Max.Rush conductivity time[ms]	6
Maximum earth leakage current[mA]		15
Braking		Regenerative braking
Main circuit method		Converter with resistor regeneration circuit
Heating value	Inside panel[W]	130
Cooling method		Forced air cooling
Mass[kg]		2.1
Selection example of contactor (option part)		S-T20-AC200V
	Free-air thermal current[A]	32
	Selection current (for 200V input)[A]	15
	Rated output[kW]	3.7
Selection example of circuit protector (option part)		NF30-SW3P-30A
	Rated current[A]	30
	Selection current (for 200V input)[A]	15
	Rated output[kW]	3.7
Regenerative option		Refer to "Regenerative option".

Outline dimension drawings [Unit : mm]







Environmental conditions

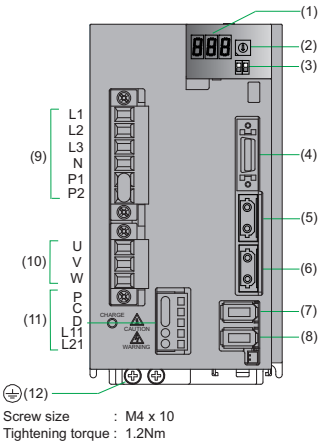
Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s^2 (0.5G) / 49m/s^2 (5G)

Recommended wire

	Terminal name									
	CNP1 (L1, L2, L3, earth)		CNP2 (L11, L21)		CNP3 (U, V, W, earth)		CNP2 (P,C)		Magnetic brake	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	2	14	2	14	2	14	2	14	-	-
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	2	14	2	14	2	14	2	14	-	-
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	2	14	1.25	16	2	14	2	14	-	-

Spindle drive unit

MDS-D-SPJ3-37NA



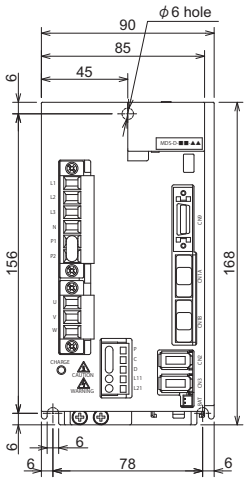
Screw size : M4 x 10
Tightening torque : 1.2Nm

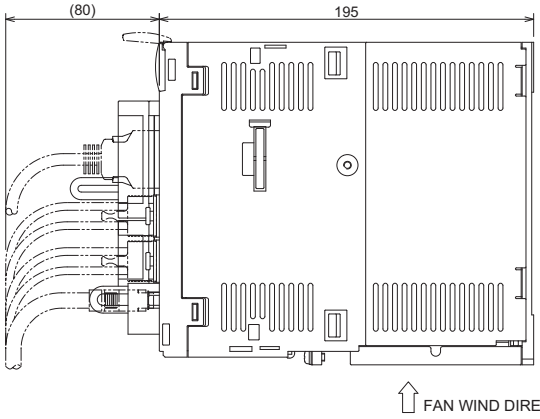
No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SW1	Axis No. setting switch
(3)	SW2	For machine tool builder adjustment: Always OFF (facing bottom)
(4)	CN9	Connector for DIO/analog output
(5)	CN1A	NC or master axis optical communication connector
(6)	CN1B	Slave axis optical communication connector
(7)	CN2	Motor side encoder connection connector
(8)	CN3	Machine side encoder connection connector
(9)	CNP1	L1,L2,L3: Power supply input terminal (3-phase AC input) N: Test terminal for the manufacturer (Do not connect.) P1,P2: not used (short-circuit between the P1 and P2.)
(10)	CNP2	Regenerative resistor connection terminal Control power input terminal (single-phase AC input)
(11)	CNP3	Motor power output terminal (3-phase AC output)
(12)	PE	Grounding terminal

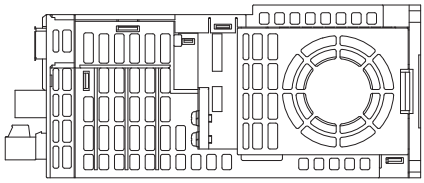
Specifications

Item		Specifications
Rated output[kW]		3.7
Power facility capacity[kVA]		7.0
Output	Rated voltage[V]	155AC
	Rated current[A]	11
Input	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±5% max
	Rated voltage(50Hz) [V]	200AC
	Rated voltage(60Hz) [V]	200 to 230AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Rated current[A]	10.5
Control power	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±5% max
	Voltage(50Hz)[V]	200AC
	Voltage(60Hz)[V]	200 to 230AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Max. Current[A]	0.2
	Max. Rush current[A]	30
	Max.Rush conductivity time[ms]	6
Maximum earth leakage current[mA]		15
Braking		Regenerative braking
Main circuit method		Converter with resistor regeneration circuit
Heating value	Inside panel[W]	130
Cooling method		Forced air cooling
Mass[kg]		2.1
Selection example of contactor (option part)		S-T20-AC200V
	Free-air thermal current[A]	32
	Selection current (for 200V input)[A]	15
	Rated output[kW]	3.7
Selection example of circuit protector (option part)		NF30-SW3P-30A
	Rated current[A]	30
	Selection current (for 200V input)[A]	15
	Rated output[kW]	3.7
Regenerative option		Refer to "Regenerative option".

Outline dimension drawings [Unit : mm]







Environmental conditions

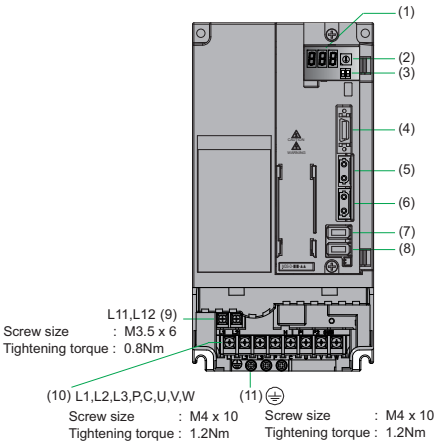
Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s^2 (0.5G) / 49m/s^2 (5G)

Recommended wire

	Terminal name									
	CNP1 (L1, L2, L3, earth)		CNP2 (L11, L21)		CNP3 (U, V, W, earth)		CNP2 (P,C)		Magnetic brake	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	2	14	2	14	2	14	2	14	-	-
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	2	14	2	14	2	14	2	14	-	-
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	2	14	1.25	16	2	14	2	14	-	-

Spindle drive unit

MDS-D-SPJ3-55

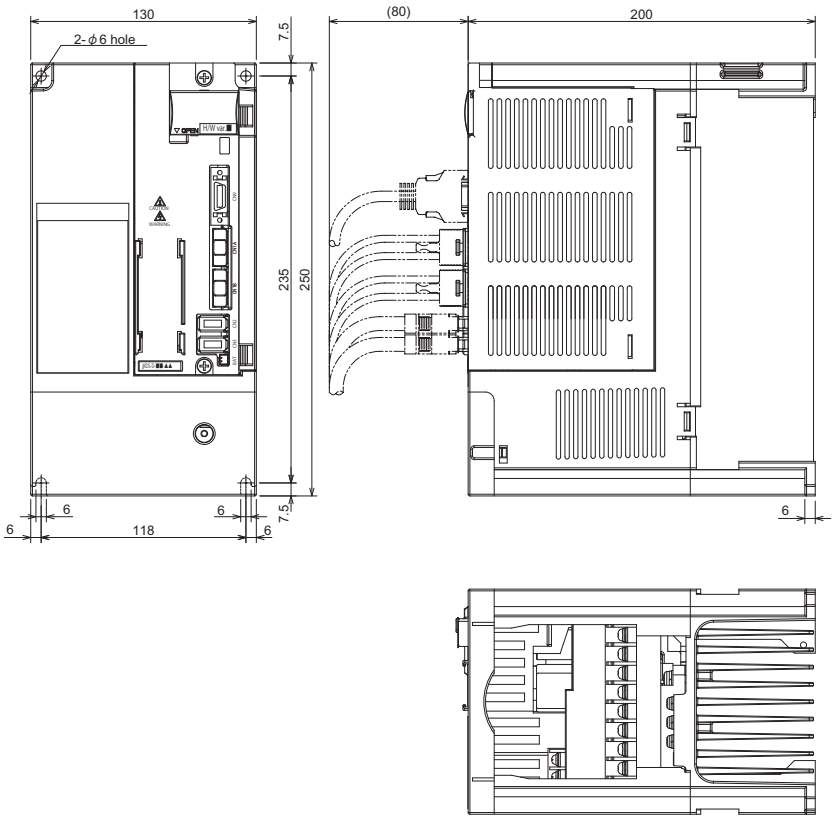


No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SW1	Axis No. setting switch
(3)	SW2	For machine tool builder adjustment: Always OFF (facing bottom)
(4)	CN9	Connector for DIO/analog output
(5)	CN1A	NC or master axis optical communication connector
(6)	CN1B	Slave axis optical communication connector
(7)	CN2	Motor side encoder connection connector
(8)	CN3	Machine side encoder connection connector
(9)	TE2	Control power input terminal (single-phase AC input)
(10)	TE1	L1,L2,L3: Power supply input terminal (3-phase AC input) P,C: Regenerative resistor connection terminal U,V,W: Motor power output terminal (3-phase AC output)
(11)	PE	Grounding terminal

Specifications

Item		Specifications
Rated output[kW]		5.5
Power facility capacity[kVA]		9.0
Output	Rated voltage[V]	155AC
	Rated current[A]	18
Input	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±5% max
	Rated voltage(50Hz) [V]	200AC
	Rated voltage(60Hz) [V]	200 to 230AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Rated current[A]	16
Control power	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±5% max
	Voltage(50Hz)[V]	200AC
	Voltage(60Hz)[V]	200 to 230AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Max. Current[A]	0.2
	Max. Rush current[A]	30
	Max.Rush conductivity time[ms]	6
Maximum earth leakage current[mA]		15
Braking		Regenerative braking
Main circuit method		Converter with resistor regeneration circuit
Heating value	Inside panel[W]	150
Cooling method		Forced air cooling
Mass[kg]		4.6
Selection example of contactor (option part)		S-T35-AC200V
	Free-air thermal current[A]	50
	Selection current (for 200V input)[A]	23
	Rated output[kW]	5.5
Selection example of circuit protector (option part)		NF50-SW3P-50A
	Rated current[A]	50
	Selection current (for 200V input)[A]	23
	Rated output[kW]	5.5
Regenerative option		Refer to "Regenerative option".

Outline dimension drawings [Unit : mm]



Environmental conditions

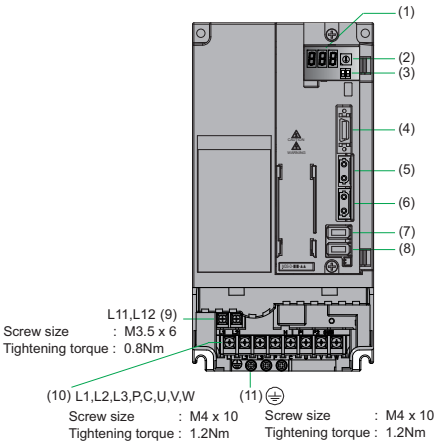
Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s^2 (0.5G) / 49m/s^2 (5G)

Recommended wire

	Terminal name									
	CNP1 (L1, L2, L3, earth)		CNP2 (L11, L21)		CNP3 (U, V, W, earth)		CNP2 (P,C)		Magnetic brake	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	3.5	12	2	14	3.5	12	2	14	-	-
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	3.5	12	2	14	3.5	12	2	14	-	-
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	2	14	1.25	16	3.5	12	2	14	-	-

Spindle drive unit

MDS-D-SPJ3-55NA

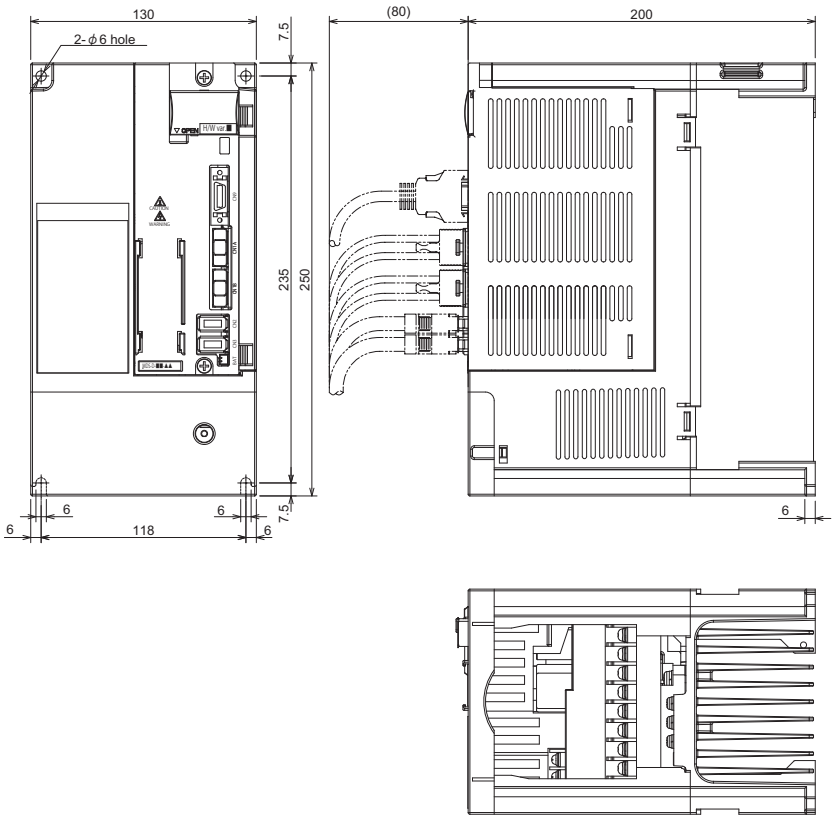


No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SW1	Axis No. setting switch
(3)	SW2	For machine tool builder adjustment: Always OFF (facing bottom)
(4)	CN9	Connector for DIO/analog output
(5)	CN1A	NC or master axis optical communication connector
(6)	CN1B	Slave axis optical communication connector
(7)	CN2	Motor side encoder connection connector
(8)	CN3	Machine side encoder connection connector
(9)	TE2	Control power input terminal (single-phase AC input)
(10)	TE1	L1,L2,L3: Power supply input terminal (3-phase AC input) P,C: Regenerative resistor connection terminal U,V,W: Motor power output terminal (3-phase AC output)
(11)	PE	Grounding terminal

Specifications

Item		Specifications
Rated output[kW]		5.5
Power facility capacity[kVA]		9.0
Output	Rated voltage[V]	155AC
	Rated current[A]	18
Input	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±5% max
	Rated voltage(50Hz) [V]	200AC
	Rated voltage(60Hz) [V]	200 to 230AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Rated current[A]	16
Control power	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±5% max
	Voltage(50Hz)[V]	200AC
	Voltage(60Hz)[V]	200 to 230AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Max. Current[A]	0.2
	Max. Rush current[A]	30
	Max.Rush conductivity time[ms]	6
Maximum earth leakage current[mA]		15
Braking		Regenerative braking
Main circuit method		Converter with resistor regeneration circuit
Heating value	Inside panel[W]	150
Cooling method		Forced air cooling
Mass[kg]		4.6
Selection example of contactor (option part)		S-T35-AC200V
	Free-air thermal current[A]	50
	Selection current (for 200V input)[A]	23
	Rated output[kW]	5.5
Selection example of circuit protector (option part)		NF50-SW3P-50A
	Rated current[A]	50
	Selection current (for 200V input)[A]	23
	Rated output[kW]	5.5
Regenerative option		Refer to "Regenerative option".

Outline dimension drawings [Unit : mm]



Environmental conditions

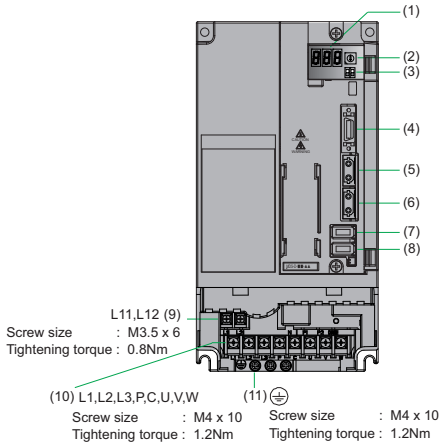
Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s^2 (0.5G) / 49m/s^2 (5G)

Recommended wire

	Terminal name									
	CNP1 (L1, L2, L3, earth)		CNP2 (L11, L21)		CNP3 (U, V, W, earth)		CNP2 (P,C)		Magnetic brake	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	3.5	12	2	14	3.5	12	2	14	-	-
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	3.5	12	2	14	3.5	12	2	14	-	-
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	2	14	1.25	16	3.5	12	2	14	-	-

Spindle drive unit

MDS-D-SPJ3-75

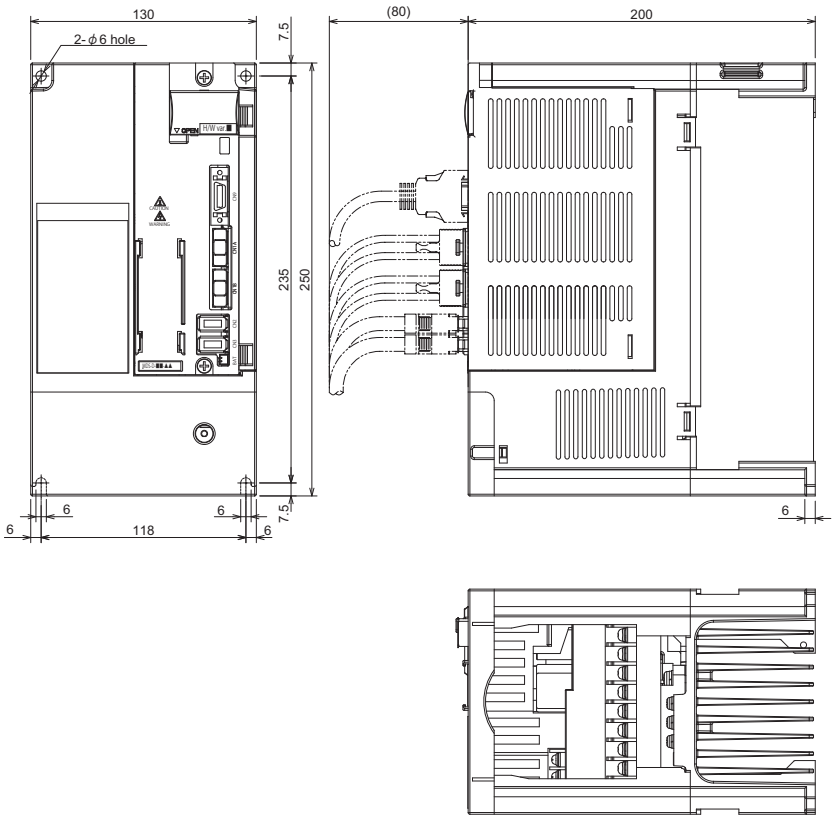


No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SW1	Axis No. setting switch
(3)	SW2	For machine tool builder adjustment: Always OFF (facing bottom)
(4)	CN9	Connector for DIO/analog output
(5)	CN1A	NC or master axis optical communication connector
(6)	CN1B	Slave axis optical communication connector
(7)	CN2	Motor side encoder connection connector
(8)	CN3	Machine side encoder connection connector
(9)	TE2	Control power input terminal (single-phase AC input)
(10)	TE1	L1,L2,L3: Power supply input terminal (3-phase AC input) P,C: Regenerative resistor connection terminal U,V,W: Motor power output terminal (3-phase AC output)
(11)	PE	Grounding terminal

Specifications

Item		Specifications
Rated output[kW]		7.5
Power facility capacity[kVA]		12.0
Output	Rated voltage[V]	155AC
	Rated current[A]	26
Input	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±5% max
	Rated voltage(50Hz) [V]	200AC
	Rated voltage(60Hz) [V]	200 to 230AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Rated current[A]	26
Control power	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±5% max
	Voltage(50Hz)[V]	200AC
	Voltage(60Hz)[V]	200 to 230AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Max. Current[A]	0.2
	Max. Rush current[A]	30
	Max.Rush conductivity time[ms]	6
Maximum earth leakage current[mA]		15
Braking		Regenerative braking
Main circuit method		Converter with resistor regeneration circuit
Heating value	Inside panel[W]	200
Cooling method		Forced air cooling
Mass[kg]		4.6
Selection example of contactor (option part)		S-T35-AC200V
	Free-air thermal current[A]	50
	Selection current (for 200V input)[A]	31
	Rated output[kW]	7.5
Selection example of circuit protector (option part)		NF100-SW3P-60A
	Rated current[A]	60
	Selection current (for 200V input)[A]	31
	Rated output[kW]	7.5
Regenerative option		Refer to "Regenerative option".

Outline dimension drawings [Unit : mm]



Environmental conditions

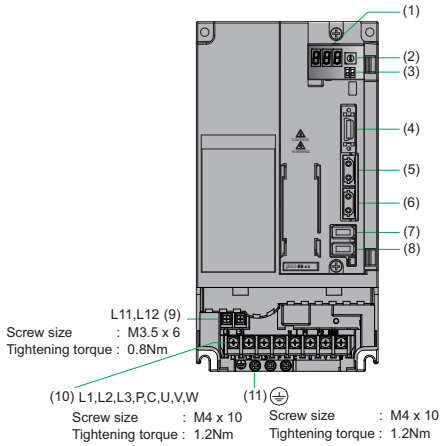
Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s^2 (0.5G) / 49m/s^2 (5G)

Recommended wire

	Terminal name									
	CNP1 (L1, L2, L3, earth)		CNP2 (L11, L21)		CNP3 (U, V, W, earth)		CNP2 (P,C)		Magnetic brake	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	5.5	10	2	14	5.5	10	3.5	12	-	-
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	5.5	10	2	14	5.5	10	3.5	12	-	-
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	3.5	12	1.25	16	5.5	10	3.5	12	-	-

Spindle drive unit

MDS-D-SPJ3-75NA

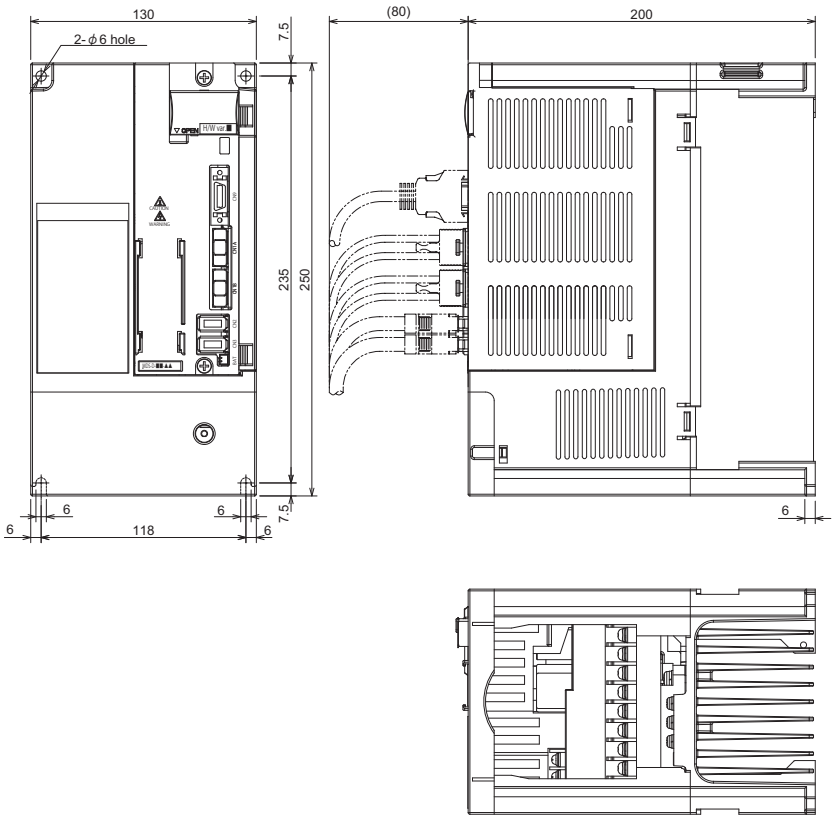


No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SW1	Axis No. setting switch
(3)	SW2	For machine tool builder adjustment: Always OFF (facing bottom)
(4)	CN9	Connector for DIO/analog output
(5)	CN1A	NC or master axis optical communication connector
(6)	CN1B	Slave axis optical communication connector
(7)	CN2	Motor side encoder connection connector
(8)	CN3	Machine side encoder connection connector
(9)	TE2	Control power input terminal (single-phase AC input)
(10)	TE1	L1,L2,L3: Power supply input terminal (3-phase AC input) P,C: Regenerative resistor connection terminal U,V,W: Motor power output terminal (3-phase AC output)
(11)	PE	Grounding terminal

Specifications

Item		Specifications
Rated output[kW]		7.5
Power facility capacity[kVA]		12.0
Output	Rated voltage[V]	155AC
	Rated current[A]	26
Input	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±5% max
	Rated voltage(50Hz) [V]	200AC
	Rated voltage(60Hz) [V]	200 to 230AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Rated current[A]	26
Control power	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±5% max
	Voltage(50Hz)[V]	200AC
	Voltage(60Hz)[V]	200 to 230AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Max. Current[A]	0.2
	Max. Rush current[A]	30
	Max.Rush conductivity time[ms]	6
Maximum earth leakage current[mA]		15
Braking		Regenerative braking
Main circuit method		Converter with resistor regeneration circuit
Heating value	Inside panel[W]	200
Cooling method		Forced air cooling
Mass[kg]		4.6
Selection example of contactor (option part)		S-T35-AC200V
	Free-air thermal current[A]	50
	Selection current (for 200V input)[A]	31
	Rated output[kW]	7.5
Selection example of circuit protector (option part)		NF100-SW3P-60A
	Rated current[A]	60
	Selection current (for 200V input)[A]	31
	Rated output[kW]	7.5
Regenerative option		Refer to "Regenerative option".

Outline dimension drawings [Unit : mm]



Environmental conditions

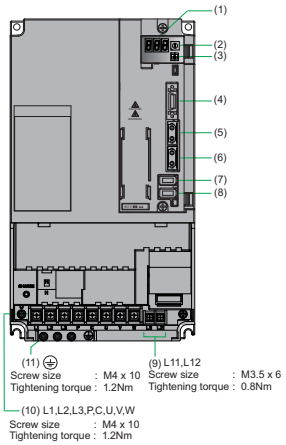
Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s^2 (0.5G) / 49m/s^2 (5G)

Recommended wire

	Terminal name									
	CNP1 (L1, L2, L3, earth)		CNP2 (L11, L21)		CNP3 (U, V, W, earth)		CNP2 (P,C)		Magnetic brake	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	5.5	10	2	14	5.5	10	3.5	12	-	-
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	5.5	10	2	14	5.5	10	3.5	12	-	-
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	3.5	12	1.25	16	5.5	10	3.5	12	-	-

Spindle drive unit

MDS-D-SPJ3-110

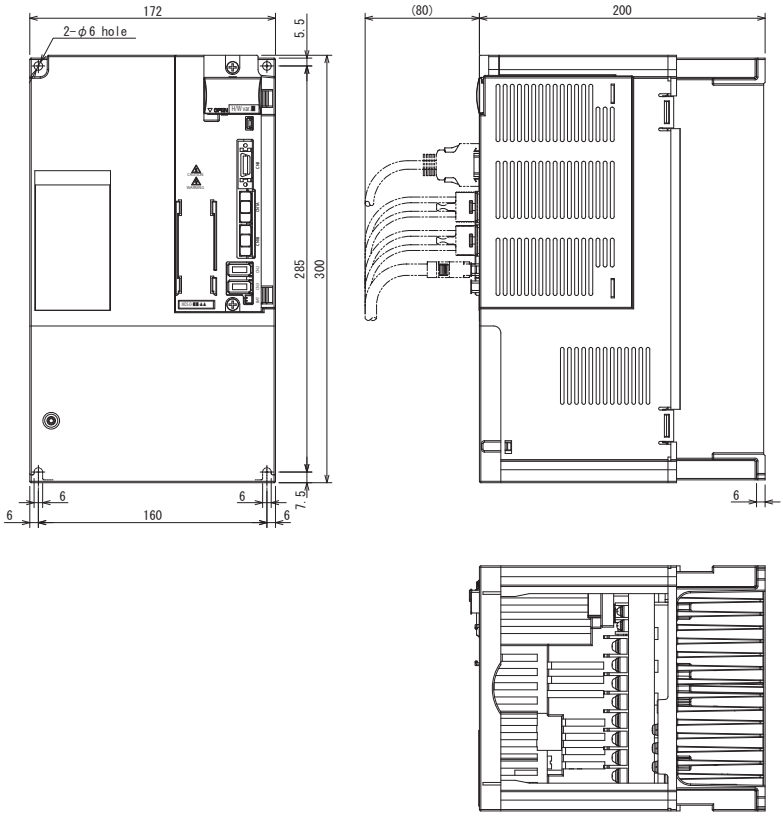


No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SW1	Axis No. setting switch
(3)	SW2	For machine tool builder adjustment: Always OFF (facing bottom)
(4)	CN9	Connector for DIO/analog output
(5)	CN1A	NC or master axis optical communication connector
(6)	CN1B	Slave axis optical communication connector
(7)	CN2	Motor side encoder connection connector
(8)	CN3	Machine side encoder connection connector
(9)	TE2	Control power input terminal (single-phase AC input)
(10)	TE1	L1,L2,L3: Power supply input terminal (3-phase AC input) P,C: Regenerative resistor connection terminal U,V,W: Motor power output terminal (3-phase AC output)
(11)	PE	Grounding terminal

Specifications

Item		Specifications
Rated output[kW]		11.0
Power facility capacity[kVA]		17.0
Output	Rated voltage[V]	155AC
	Rated current[A]	36
Input	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±5% max
	Rated voltage(50Hz) [V]	200AC
	Rated voltage(60Hz) [V]	200 to 230AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Rated current[A]	35.4
Control power	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±5% max
	Voltage(50Hz)[V]	200AC
	Voltage(60Hz)[V]	200 to 230AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Max. Current[A]	0.2
	Max. Rush current[A]	30
	Max.Rush conductivity time[ms]	6
Maximum earth leakage current[mA]		15
Braking		Regenerative braking
Main circuit method		Converter with resistor regeneration circuit
Heating value	Inside panel[W]	300
Cooling method		Forced air cooling
Mass[kg]		6.5
Selection example of contactor (option part)		S-T35-AC200V
	Free-air thermal current[A]	60
	Selection current (for 200V input)[A]	45
	Rated output[kW]	11
Selection example of circuit protector (option part)		NF100-SW3P-100A
	Rated current[A]	100
	Selection current (for 200V input)[A]	45
	Rated output[kW]	11
Regenerative option		Refer to "Regenerative option".

Outline dimension drawings [Unit : mm]



Environmental conditions

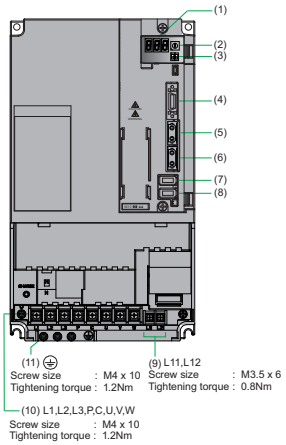
Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s^2 (0.5G) / 49m/s^2 (5G)

Recommended wire

	Terminal name									
	CNP1 (L1, L2, L3, earth)		CNP2 (L11, L21)		CNP3 (U, V, W, earth)		CNP2 (P,C)		Magnetic brake	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	14	6	2	14	14	6	3.5	12	-	-
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	8	8	2	14	8	8	3.5	12	-	-
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	5.5	10	1.25	16	5.5	10	3.5	12	-	-

Spindle drive unit

MDS-D-SPJ3-110NA

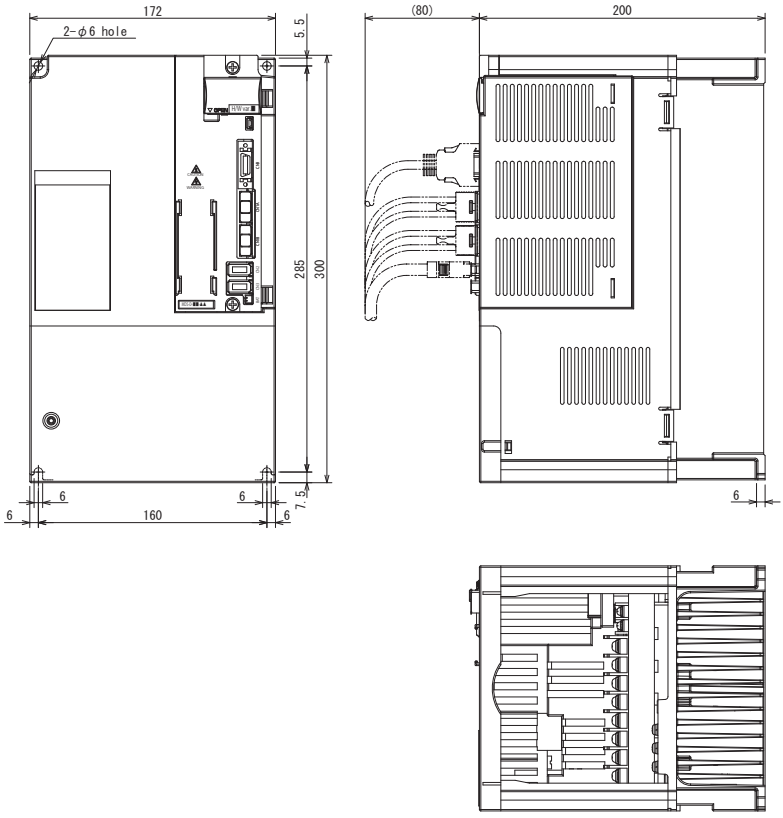


No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SW1	Axis No. setting switch
(3)	SW2	For machine tool builder adjustment: Always OFF (facing bottom)
(4)	CN9	Connector for DIO/analog output
(5)	CN1A	NC or master axis optical communication connector
(6)	CN1B	Slave axis optical communication connector
(7)	CN2	Motor side encoder connection connector
(8)	CN3	Machine side encoder connection connector
(9)	TE2	Control power input terminal (single-phase AC input)
(10)	TE1	L1,L2,L3: Power supply input terminal (3-phase AC input) P,C: Regenerative resistor connection terminal U,V,W: Motor power output terminal (3-phase AC output)
(11)	PE	Grounding terminal

Specifications

Item		Specifications
Rated output[kW]		11.0
Power facility capacity[kVA]		17.0
Output	Rated voltage[V]	155AC
	Rated current[A]	36
Input	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±5% max
	Rated voltage(50Hz) [V]	200AC
	Rated voltage(60Hz) [V]	200 to 230AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Rated current[A]	35.4
Control power	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±5% max
	Voltage(50Hz)[V]	200AC
	Voltage(60Hz)[V]	200 to 230AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Max. Current[A]	0.2
	Max. Rush current[A]	30
	Max.Rush conductivity time[ms]	6
Maximum earth leakage current[mA]		15
Braking		Regenerative braking
Main circuit method		Converter with resistor regeneration circuit
Heating value	Inside panel[W]	300
Cooling method		Forced air cooling
Mass[kg]		6.5
Selection example of contactor (option part)		S-T35-AC200V
	Free-air thermal current[A]	60
	Selection current (for 200V input)[A]	45
	Rated output[kW]	11
Selection example of circuit protector (option part)		NF100-SW3P-100A
	Rated current[A]	100
	Selection current (for 200V input)[A]	45
	Rated output[kW]	11
Regenerative option		Refer to "Regenerative option".

Outline dimension drawings [Unit : mm]



Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s^2 (0.5G) / 49m/s^2 (5G)

Recommended wire

	Terminal name									
	CNP1 (L1, L2, L3, earth)		CNP2 (L11, L21)		CNP3 (U, V, W, earth)		CNP2 (P,C)		Magnetic brake	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	14	6	2	14	14	6	3.5	12	-	-
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	8	8	2	14	8	8	3.5	12	-	-
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	5.5	10	1.25	16	5.5	10	3.5	12	-	-

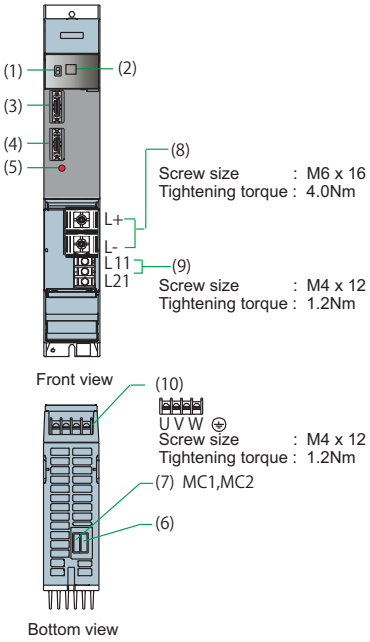
Power supply unit

Power supply unit

MDS-D-CV-37

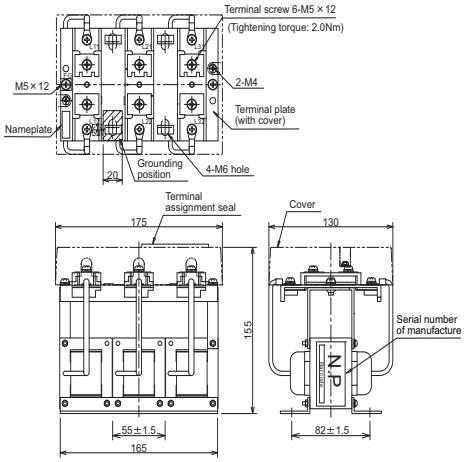
Specifications

Item		Specifications
30-minute rated output[kW]		3.7
Continuous rated output[kW]		2.2
Power facility capacity[kVA]		5.3
Output	Rated voltage[V]	270 to 311DC
	Rated current[A]	17
Input	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±3% max
	Rated voltage(50Hz)[V]	200AC
	Rated voltage(60Hz)[V]	200 to 230AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Rated current[A]	15
Control power	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±3% max
	Voltage(50Hz)[V]	200AC
	Voltage(60Hz)[V]	200 to 230AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Max. current[A]	0.2
	Max. rush current[A]	38
	Max. rush conductivity time[ms]	3
Heating value	Inside panel[W]	20
	Outside panel[W]	34
Cooling method		Forced air cooling
Mass[kg]		4.0
AC reactor		D-AL-7.5K
Selection example of contactor (option part)		S-T12-AC200V
	Free-air thermal current[A]	20
	Selection current (for 200V input)[A]	15
	Rated output[kW]	3.7
Selection example of circuit protector (option part)		NF63-CW3P-20A
	Rated current[A]	20
	Selection current (for 200V input)[A]	15
	Rated output[kW]	3.7

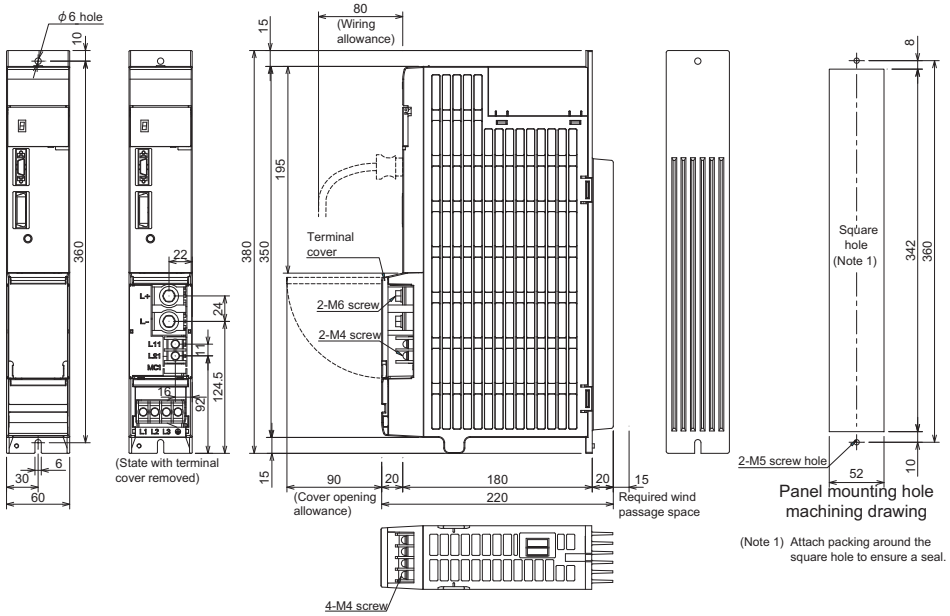


No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SW1	Power supply setting switch
(3)	CN4	Servo/spindle communication connector (primary)
(4)	CN9	Servo/spindle communication connector (secondary)
(5)	CHARGE LAMP	Converter voltage output charge-discharge status indication LED
(6)	CN23A	External emergency stop input connector
(7)	CN23B	Contactor control connector MC1,MC2
(8)	TE2	Main circuit power supply output terminal (DC output)
(9)	TE3	Control power input terminal (single-phase AC input)
(10)	TE1	Power input terminal (3-phase AC input) Grounding terminal

AC reactor



Outline dimension drawings [Unit : mm]



Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s^2 (0.5G) / 49m/s^2 (5G)

Recommended wire

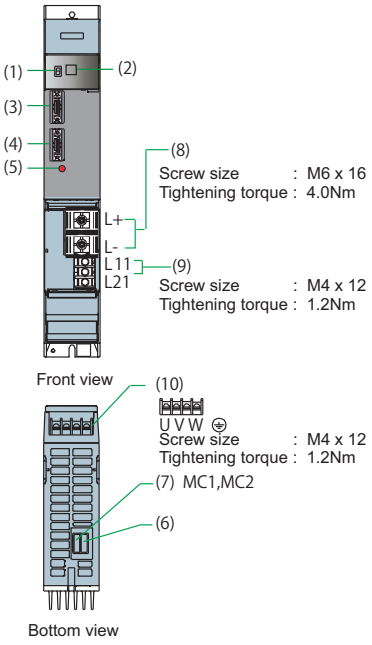
	Terminal name					
	TE1(U, V, W, earth)		TE2(L+, L-)		TE3(L11, L21)	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	2	14	3.5	12	2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	2	14	3.5	12	2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	2	14	2	14	1.25 to 2	16 to 14

Power supply unit

MDS-D-CV-75

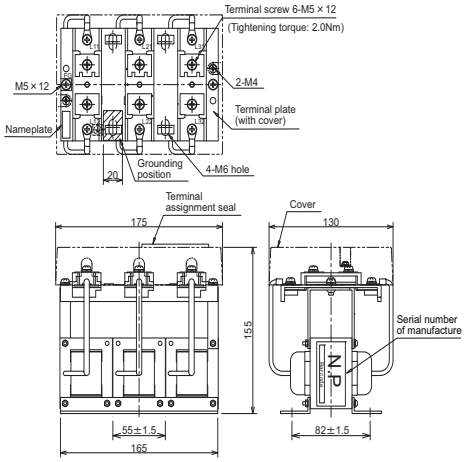
Specifications

Item		Specifications
30-minute rated output[kW]		7.5
Continuous rated output[kW]		5.5
Power facility capacity[kVA]		11.0
Output	Rated voltage[V]	270 to 311DC
	Rated current[A]	30
Input	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±3% max
	Rated voltage(50Hz)[V]	200AC
	Rated voltage(60Hz)[V]	200 to 230AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Rated current[A]	26
Control power	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±3% max
	Voltage(50Hz)[V]	200AC
	Voltage(60Hz)[V]	200 to 230AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Max. current[A]	0.2
	Max. rush current[A]	38
	Max. rush conductivity time[ms]	3
Heating value	Inside panel[W]	24
	Outside panel[W]	55
Cooling method		Forced air cooling
Mass[kg]		4.0
AC reactor		D-AL-7.5K
Selection example of contactor (option part)		S-T35-AC200V
	Free-air thermal current[A]	50
	Selection current (for 200V input)[A]	31
	Rated output[kW]	7.5
Selection example of circuit protector (option part)		NF63-CW3P-40A
	Rated current[A]	40
	Selection current (for 200V input)[A]	31
	Rated output[kW]	7.5

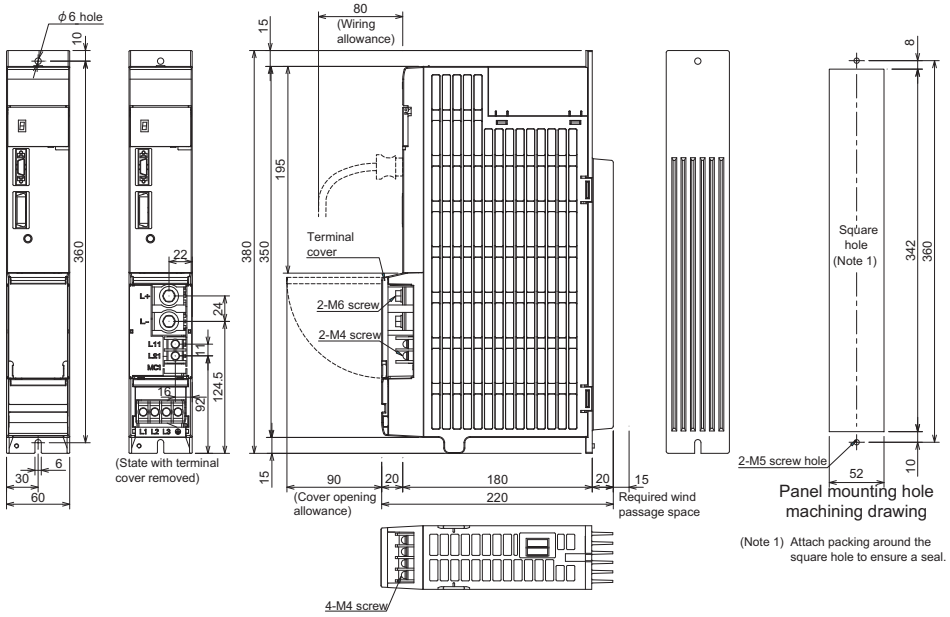


No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SW1	Power supply setting switch
(3)	CN4	Servo/spindle communication connector (primary)
(4)	CN9	Servo/spindle communication connector (secondary)
(5)	CHARGE LAMP	Converter voltage output charge-discharge status indication LED
(6)	CN23A	External emergency stop input connector
(7)	CN23B	Contactor control connector MC1,MC2
(8)	TE2	Main circuit power supply output terminal (DC output)
(9)	TE3	Control power input terminal (single-phase AC input)
(10)	TE1	Power input terminal (3-phase AC input) Grounding terminal

AC reactor



Outline dimension drawings [Unit : mm]



Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s^2 (0.5G) / 49m/s^2 (5G)

Recommended wire

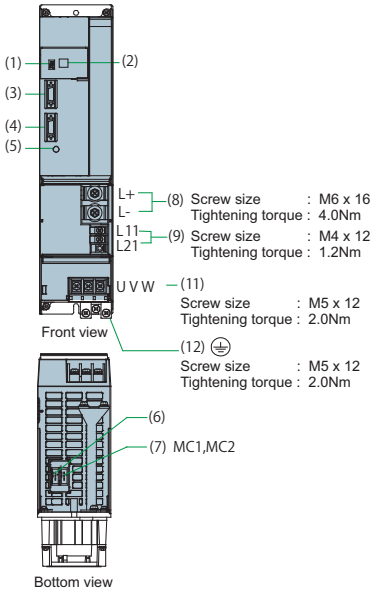
	Terminal name					
	TE1(U, V, W, earth)		TE2(L+, L-)		TE3(L11, L21)	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	5.5	10	8	8	2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	5.5	10	5.5	10	2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	3.5	12	3.5	12	1.25 to 2	16 to 14

Power supply unit

MDS-D-CV-110

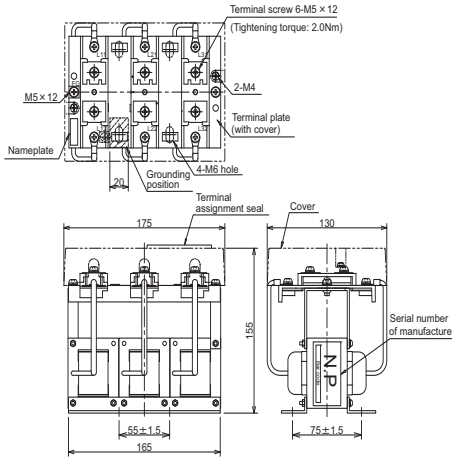
Specifications

Item		Specifications
30-minute rated output[kW]		11.0
Continuous rated output[kW]		7.5
Power facility capacity[kVA]		16.0
Output	Rated voltage[V]	270 to 311DC
	Rated current[A]	41
Input	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±3% max
	Rated voltage(50Hz)[V]	200AC
	Rated voltage(60Hz)[V]	200 to 230AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Rated current[A]	35
Control power	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±3% max
	Voltage(50Hz)[V]	200AC
	Voltage(60Hz)[V]	200 to 230AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Max. current[A]	0.2
	Max. rush current[A]	30
	Max. rush conductivity time[ms]	6
Heating value	Inside panel[W]	25
	Outside panel[W]	99
Cooling method		Forced air cooling
Mass[kg]		6.0
AC reactor		D-AL-11K
Selection example of contactor (option part)		S-T35-AC200V
	Free-air thermal current[A]	50
	Selection current (for 200V input)[A]	45
	Rated output[kW]	11
Selection example of circuit protector (option part)		NF63-CW3P-50A
	Rated current[A]	50
	Selection current (for 200V input)[A]	45
	Rated output[kW]	11

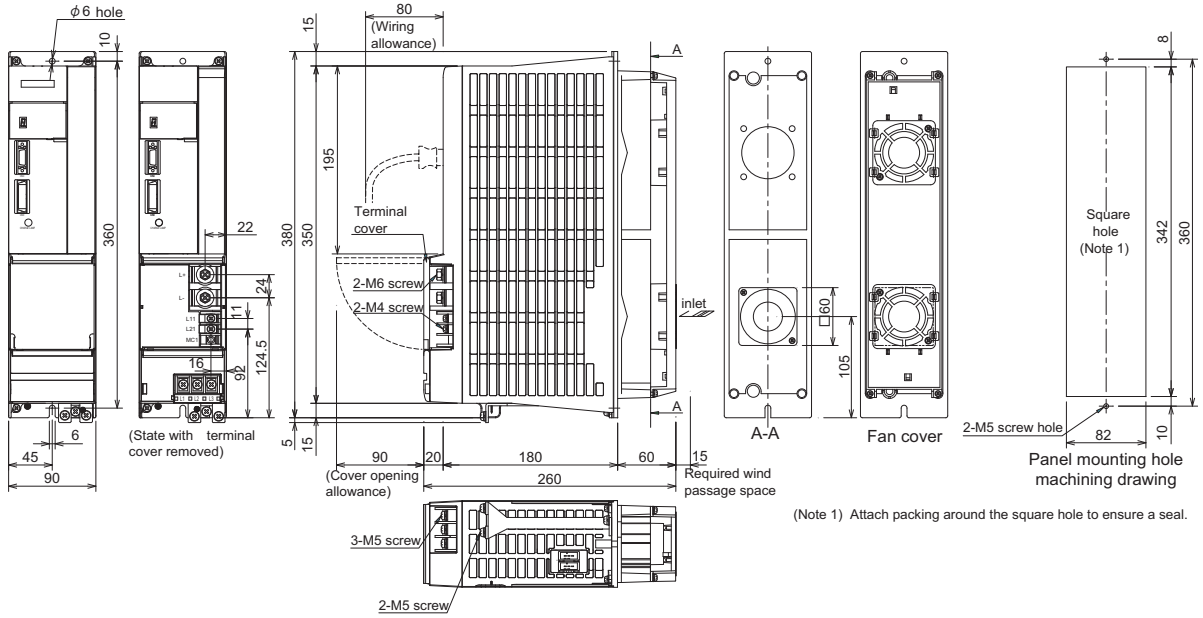


No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SW1	Power supply setting switch
(3)	CN4	Servo/spindle communication connector (primary)
(4)	CN9	Servo/spindle communication connector (secondary)
(5)	CHARGE LAMP	Converter voltage output charge-discharge status indication LED
(6)	CN23A	External emergency stop input connector
(7)	CN23B	Contactor control connector MC1,MC2 (Key way: Y type)
(8)	TE2	Main circuit power supply output terminal (DC output)
(9)	TE3	Control power input terminal (single-phase AC input)
(11)	TE1	Power input terminal (3-phase AC input)
(12)	PE	Grounding terminal

AC reactor



Outline dimension drawings [Unit : mm]



(Note 1) Attach packing around the square hole to ensure a seal.

Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s^2 (0.5G) / 49m/s^2 (5G)

Recommended wire

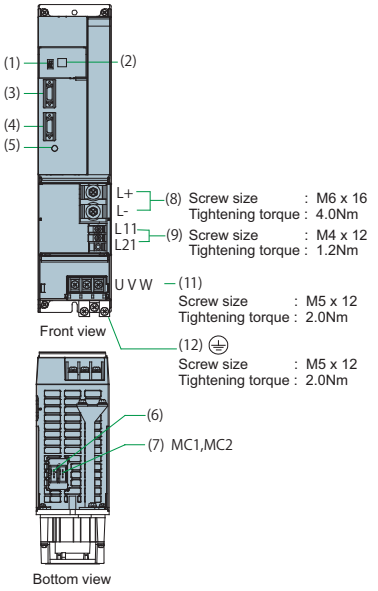
	Terminal name					
	TE1(U, V, W, earth)		TE2(L+, L-)		TE3(L11, L21)	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	14	6	22	4	2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	8	8	8	8	2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	5.5	10	14	6	1.25 to 2	16 to 14

Power supply unit

MDS-D-CV-185

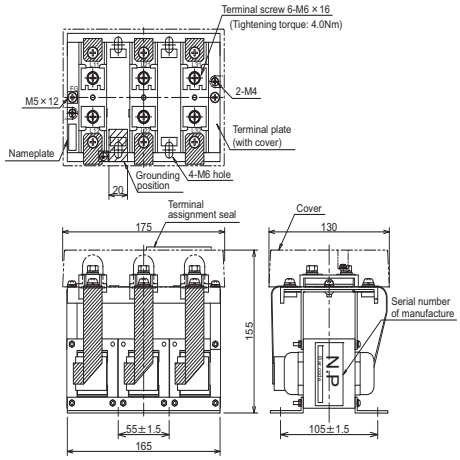
Specifications

Item		Specifications
30-minute rated output[kW]		18.5
Continuous rated output[kW]		15.0
Power facility capacity[kVA]		27.0
Output	Rated voltage[V]	270 to 311DC
	Rated current[A]	76
Input	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±3% max
	Rated voltage(50Hz)[V]	200AC
	Rated voltage(60Hz)[V]	200 to 230AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Rated current[A]	65
Control power	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±3% max
	Voltage(50Hz)[V]	200AC
	Voltage(60Hz)[V]	200 to 230AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Max. current[A]	0.2
	Max. rush current[A]	30
	Max. rush conductivity time[ms]	6
Heating value	Inside panel[W]	32
	Outside panel[W]	161
Cooling method		Forced air cooling
Mass[kg]		6.0
AC reactor		D-AL-18.5K
Selection example of contactor (option part)		S-T65-AC200V
	Free-air thermal current[A]	100
	Selection current (for 200V input)[A]	76
	Rated output[kW]	18.5
Selection example of circuit protector (option part)		NF125-CW3P-100A
	Rated current[A]	100
	Selection current (for 200V input)[A]	76
	Rated output[kW]	18.5

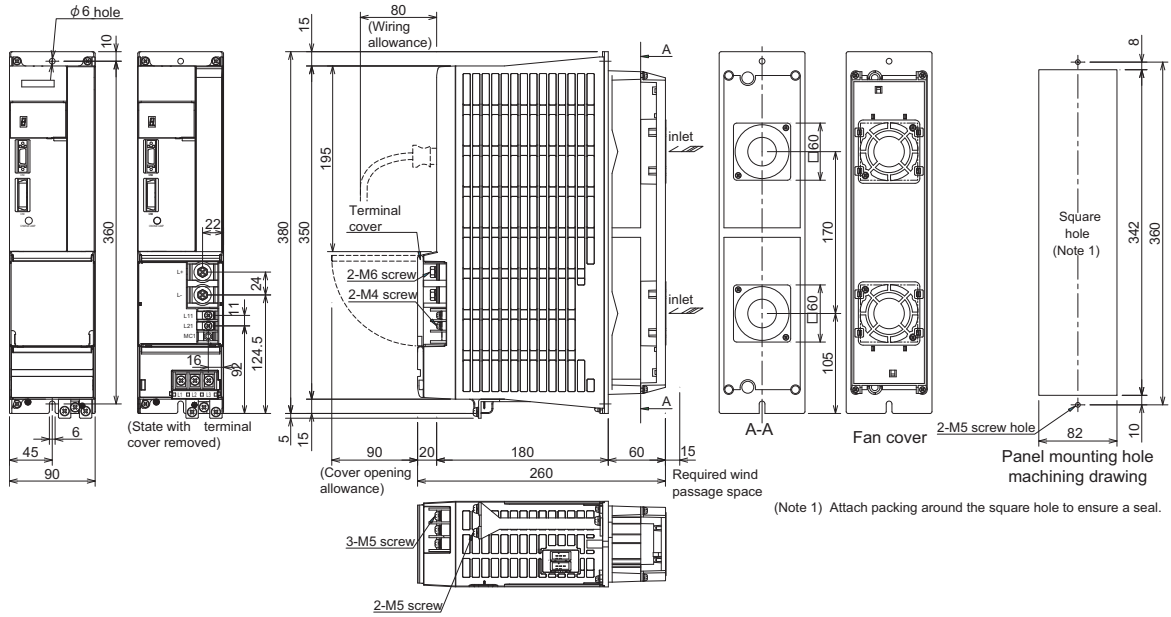


No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SW1	Power supply setting switch
(3)	CN4	Servo/spindle communication connector (primary)
(4)	CN9	Servo/spindle communication connector (secondary)
(5)	CHARGE LAMP	Converter voltage output charge-discharge status indication LED
(6)	CN23A	External emergency stop input connector
(7)	CN23B	Contactor control connector MC1,MC2 (Key way: Y type)
(8)	TE2	Main circuit power supply output terminal (DC output)
(9)	TE3	Control power input terminal (single-phase AC input)
(11)	TE1	Power input terminal (3-phase AC input)
(12)	PE	Grounding terminal

AC reactor



Outline dimension drawings [Unit : mm]



(Note 1) Attach packing around the square hole to ensure a seal.

Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s^2 (0.5G) / 49m/s^2 (5G)

Recommended wire

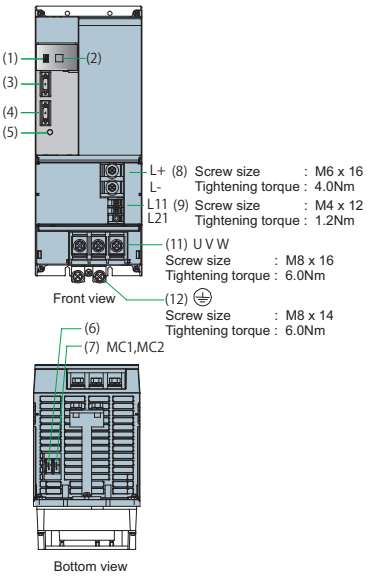
	Terminal name					
	TE1(U, V, W, earth)		TE2(L+, L-)		TE3(L11, L21)	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	30	3	38	2	2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	14	6	22	4	2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	14	6	22	4	1.25 to 2	16 to 14

Power supply unit

MDS-D-CV-300

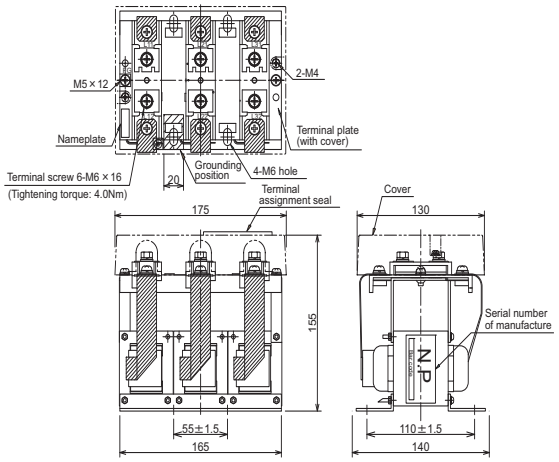
Specifications

Item		Specifications
30-minute rated output[kW]		30.0
Continuous rated output[kW]		26.0
Power facility capacity[kVA]		43.0
Output	Rated voltage[V]	270 to 311DC
	Rated current[A]	144
Input	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±3% max
	Rated voltage(50Hz)[V]	200AC
	Rated voltage(60Hz)[V]	200 to 230AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Rated current[A]	107
Control power	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±3% max
	Voltage(50Hz)[V]	200AC
	Voltage(60Hz)[V]	200 to 230AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Max. current[A]	0.2
	Max. rush current[A]	30
	Max. rush conductivity time[ms]	6
Heating value	Inside panel[W]	45
	Outside panel[W]	272
Cooling method		Forced air cooling
Mass[kg]		10.0
AC reactor		D-AL-30K
Selection example of contactor (option part)		S-T80-AC200V
	Free-air thermal current[A]	135
	Selection current (for 200V input)[A]	124
	Rated output[kW]	30
Selection example of circuit protector (option part)		NF250-CW3P-125A
	Rated current[A]	125
	Selection current (for 200V input)[A]	124
	Rated output[kW]	30

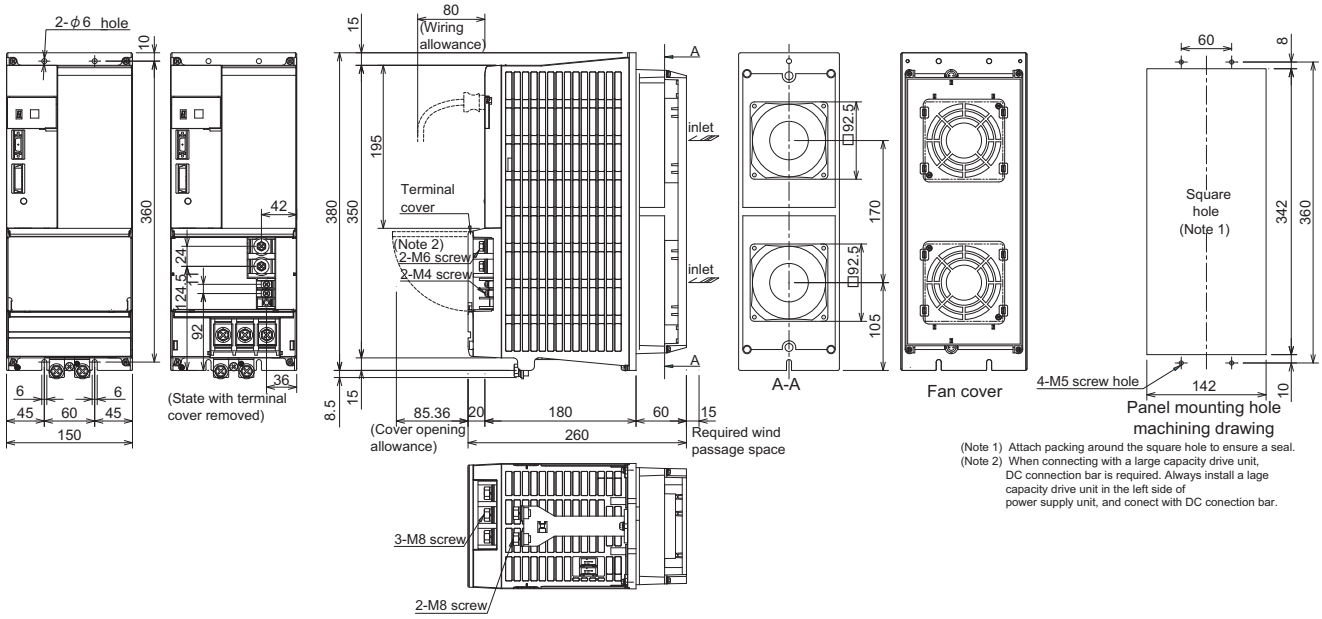


No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SW1	Power supply setting switch
(3)	CN4	Servo/spindle communication connector (primary)
(4)	CN9	Servo/spindle communication connector (secondary)
(5)	CHARGE LAMP	Converter voltage output charge-discharge status indication LED
(6)	CN23A	External emergency stop input connector
(7)	CN23B	Contactor control connector MC1,MC2 (Key way: Y type)
(8)	TE2	Main circuit power supply output terminal (DC output)
(9)	TE3	Control power input terminal (single-phase AC input)
(11)	TE1	Power input terminal (3-phase AC input)
(12)	PE	Grounding terminal

AC reactor



Outline dimension drawings [Unit : mm]



(Note 1) Attach packing around the square hole to ensure a seal.
(Note 2) When connecting with a large capacity drive unit, DC connection bar is required. Always install a lage capacity drive unit in the left side of power supply unit, and conect with DC conection bar.

Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s^2 (0.5G) / 49m/s^2 (5G)

Recommended wire

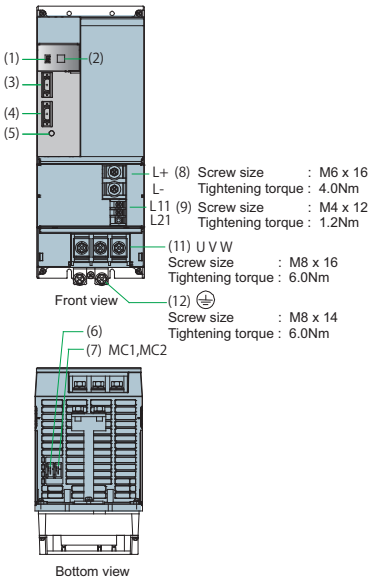
	Terminal name					
	TE1(U, V, W, earth)		TE2(L+, L-)		TE3(L11, L21)	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	-	-	-	-	2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	38	2	Bar enclosed		2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	38	2	50	1	1.25 to 2	16 to 14

Power supply unit

MDS-D-CV-370

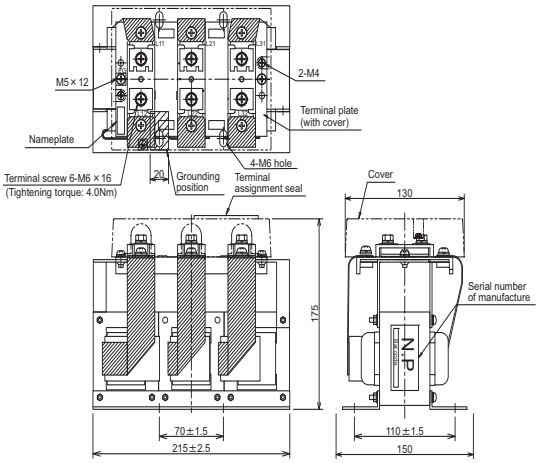
Specifications

Item		Specifications
30-minute rated output[kW]		37.0
Continuous rated output[kW]		30.0
Power facility capacity[kVA]		53.0
Output	Rated voltage[V]	270 to 311DC
	Rated current[A]	164
Input	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±3% max
	Rated voltage(50Hz)[V]	200AC
	Rated voltage(60Hz)[V]	200 to 230AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Rated current[A]	121
Control power	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±3% max
	Voltage(50Hz)[V]	200AC
	Voltage(60Hz)[V]	200 to 230AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Max. current[A]	0.2
	Max. rush current[A]	30
	Max. rush conductivity time[ms]	6
Heating value	Inside panel[W]	53
	Outside panel[W]	343
Cooling method		Forced air cooling
Mass[kg]		10.0
AC reactor		D-AL-37K
Selection example of contactor (option part)		S-N150-AC200V
	Free-air thermal current[A]	200
	Selection current (for 200V input)[A]	153
	Rated output[kW]	37
Selection example of circuit protector (option part)		NF250-CW3P-175A
	Rated current[A]	175
	Selection current (for 200V input)[A]	153
	Rated output[kW]	37

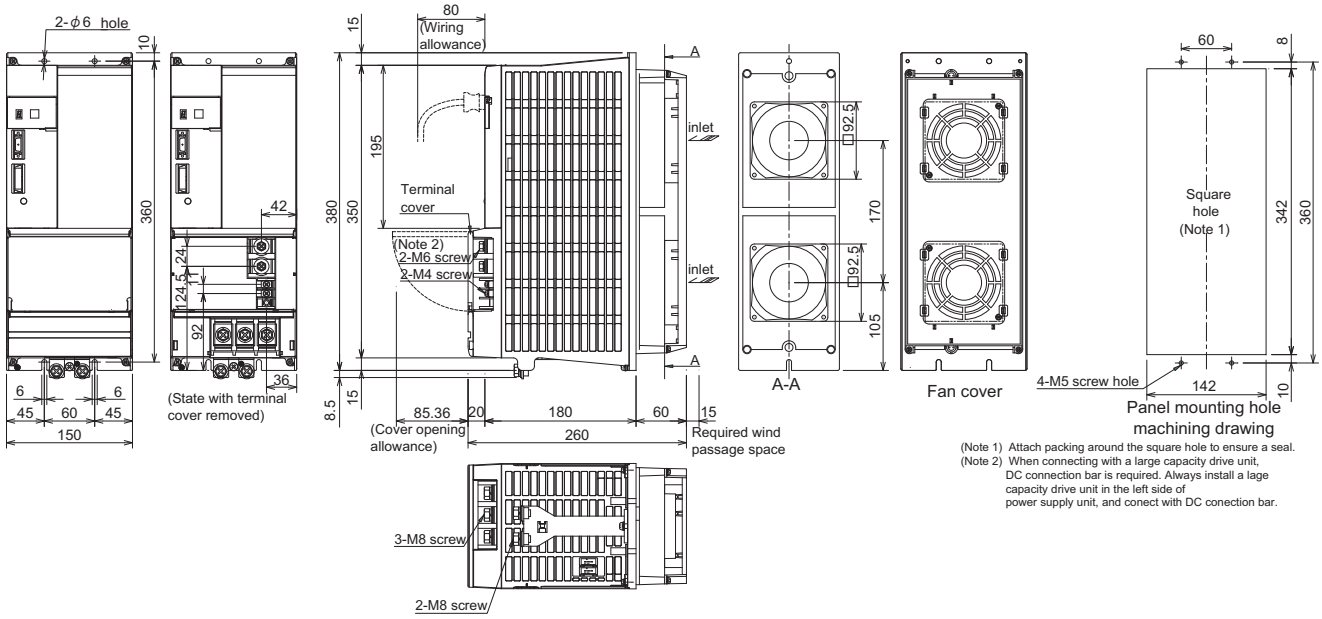


No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SW1	Power supply setting switch
(3)	CN4	Servo/spindle communication connector (primary)
(4)	CN9	Servo/spindle communication connector (secondary)
(5)	CHARGE LAMP	Converter voltage output charge-discharge status indication LED
(6)	CN23A	External emergency stop input connector
(7)	CN23B	Contactor control connector MC1,MC2 (Key way: Y type)
(8)	TE2	Main circuit power supply output terminal (DC output)
(9)	TE3	Control power input terminal (single-phase AC input)
(11)	TE1	Power input terminal (3-phase AC input)
(12)	PE	Grounding terminal

AC reactor



Outline dimension drawings [Unit : mm]



(Note 1) Attach packing around the square hole to ensure a seal.
(Note 2) When connecting with a large capacity drive unit, DC connection bar is required. Always install a lage capacity drive unit in the left side of power supply unit, and conect with DC conection bar.

Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s^2 (0.5G) / 49m/s^2 (5G)

Recommended wire

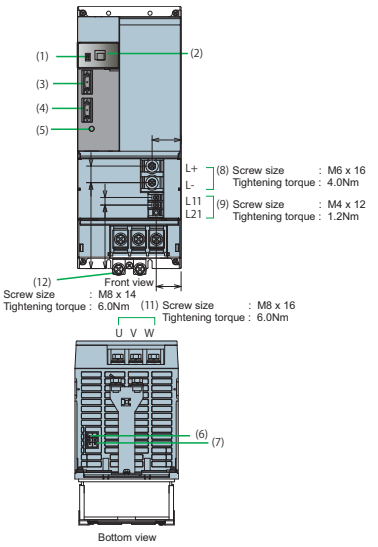
	Terminal name					
	TE1(U, V, W, earth)		TE2(L+, L-)		TE3(L11, L21)	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	-	-	-	-	2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	60	1/0	Bar enclosed		2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	38	2	60	1/0	1.25 to 2	16 to 14

Power supply unit

MDS-D-CV-450

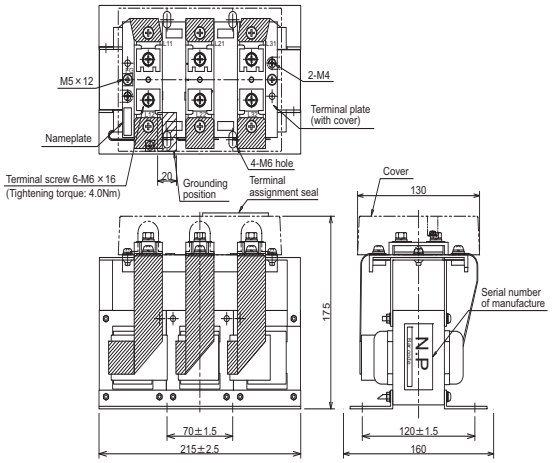
Specifications

Item		Specifications
30-minute rated output[kW]		45.0
Continuous rated output[kW]		37.0
Power facility capacity[kVA]		64.0
Output	Rated voltage[V]	270 to 311DC
	Rated current[A]	198
Input	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±3% max
	Rated voltage(50Hz)[V]	200AC
	Rated voltage(60Hz)[V]	200 to 230AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Rated current[A]	148
Control power	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±3% max
	Voltage(50Hz)[V]	200AC
	Voltage(60Hz)[V]	200 to 230AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Max. current[A]	0.2
	Max. rush current[A]	30
	Max. rush conductivity time[ms]	6
Heating value	Inside panel[W]	104
	Outside panel[W]	392
Cooling method		Forced air cooling
Mass[kg]		10.0
AC reactor		D-AL-45K
Selection example of contactor (option part)		S-N150-AC200V
	Free-air thermal current[A]	200
	Selection current (for 200V input)[A]	186
	Rated output[kW]	45
Selection example of circuit protector (option part)		NF250-CW3P-200A
	Rated current[A]	200
	Selection current (for 200V input)[A]	186
	Rated output[kW]	45

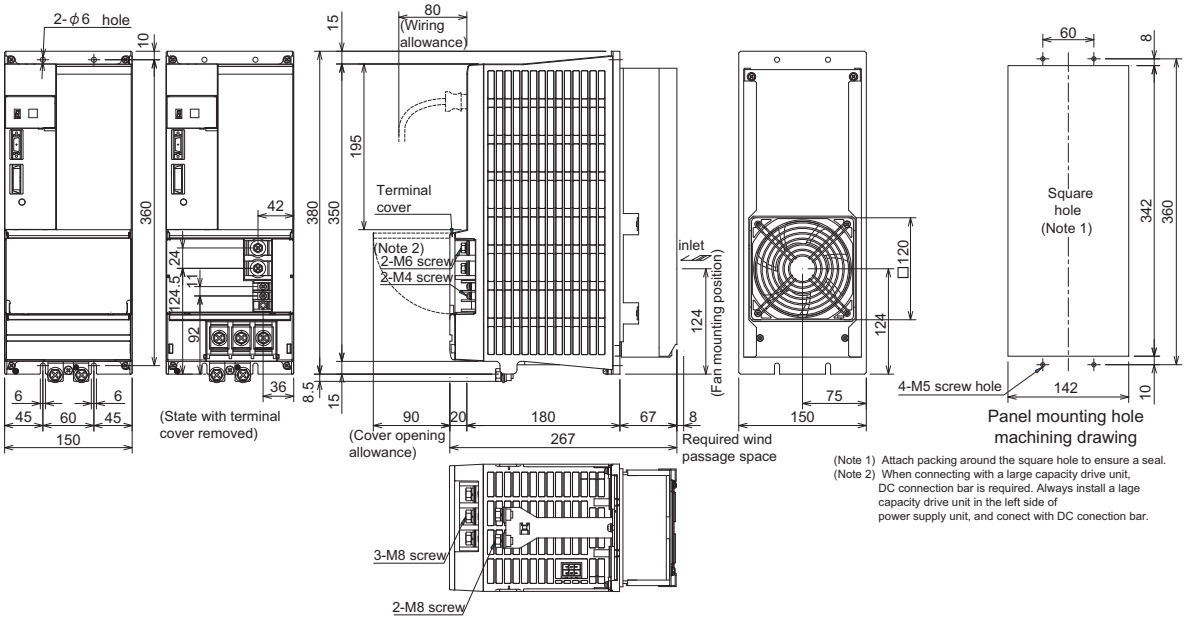


No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SW1	Power supply setting switch
(3)	CN4	Servo/spindle communication connector (primary)
(4)	CN9	Servo/spindle communication connector (secondary)
(5)	CHARGE LAMP	Converter voltage output charge-discharge status indication LED
(6)	CN23A	External emergency stop input connector
(7)	CN23B	Contactor control connector MC1,MC2 (Key way: Y type)
(8)	TE2	Main circuit power supply output terminal (DC output)
(9)	TE3	Control power input terminal (single-phase AC input)
(11)	TE1	Power input terminal (3-phase AC input)
(12)	PE	Grounding terminal

AC reactor



Outline dimension drawings [Unit : mm]



(Note 1) Attach packing around the square hole to ensure a seal.
(Note 2) When connecting with a large capacity drive unit, DC connection bar is required. Always install a lage capacity drive unit in the left side of power supply unit, and conect with DC conection bar.

Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s^2 (0.5G) / 49m/s^2 (5G)

Recommended wire

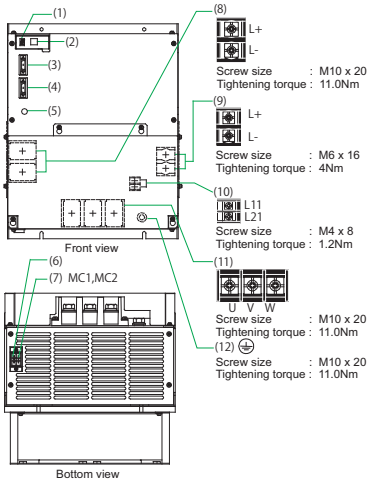
	Terminal name					
	TE1(U, V, W, earth)		TE2(L+, L-)		TE3(L11, L21)	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	-	-	-	-	2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	60	1/0	Bar enclosed		2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	60	1/0	60	1/0	1.25 to 2	16 to 14

Power supply unit

MDS-D-CV-550

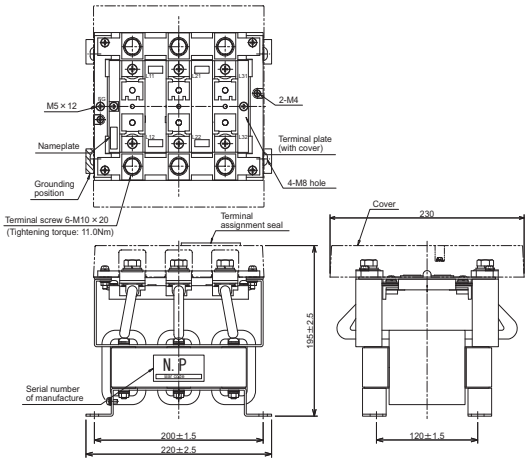
Specifications

Item		Specifications
30-minute rated output[kW]		55.0
Continuous rated output[kW]		45.0
Power facility capacity[kVA]		78.0
Output	Rated voltage[V]	270 to 311DC
	Rated current[A]	238
Input	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±3% max
	Rated voltage(50Hz)[V]	200AC
	Rated voltage(60Hz)[V]	200 to 230AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Rated current[A]	200
Control power	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±3% max
	Voltage(50Hz)[V]	200AC
	Voltage(60Hz)[V]	200 to 230AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Max. current[A]	0.2
	Max. rush current[A]	30
	Max. rush conductivity time[ms]	6
Heating value	Inside panel[W]	164
	Outside panel[W]	431
Cooling method		Forced air cooling
Mass[kg]		25.5
AC reactor		D-AL-55K
Selection example of contactor (option part)		S-N180-AC200V
	Free-air thermal current[A]	260
	Selection current (for 200V input)[A]	224
	Rated output[kW]	55
Selection example of circuit protector (option part)		NF250-CW3P-225A
	Rated current[A]	225
	Selection current (for 200V input)[A]	224
	Rated output[kW]	55

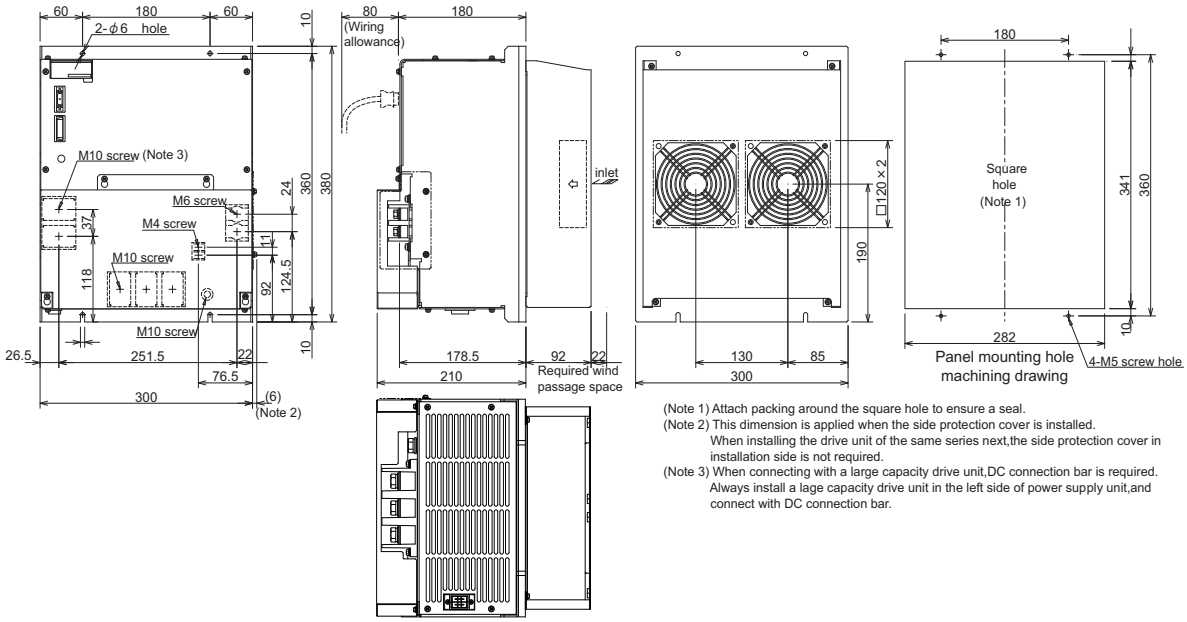


No.	Name	Description
(1)	LED	Power supply status indication LED
(2)	SW1	Power supply setting switch
(3)	CN4	Servo/spindle communication connector (primary)
(4)	CN9	Servo/spindle communication connector (secondary)
(5)	CHARGE LAMP	TE2 output charging/discharging circuit indication LED
(6)	CN23A	External emergency stop input connector
(7)	CN23B	External contactor control connector MC1,MC2 (Key way: Y type)
(8)	TE2	Converter voltage output terminal (DC output)
(9)		
(10)	TE3	Control power input terminal (single-phase AC input)
(11)	TE1	Power input terminal (3-phase AC input)
(12)	PE	Grounding terminal

AC reactor



Outline dimension drawings [Unit : mm]



(Note 1) Attach packing around the square hole to ensure a seal.
(Note 2) This dimension is applied when the side protection cover is installed.
When installing the drive unit of the same series next,the side protection cover in installation side is not required.
(Note 3) When connecting with a large capacity drive unit,DC connection bar is required.
Always install a lage capacity drive unit in the left side of power supply unit,and connect with DC connection bar.

Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s^2 (0.5G) / 49m/s^2 (5G)

Recommended wire

	Terminal name					
	TE1(U, V, W, earth)		TE2(L+, L-)		TE3(L11, L21)	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	-	-	Bar enclosed		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	80	3/0			2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	60	1/0			1.25 to 2	16 to 14

Dynamic brake unit (MDS-D-DBU)

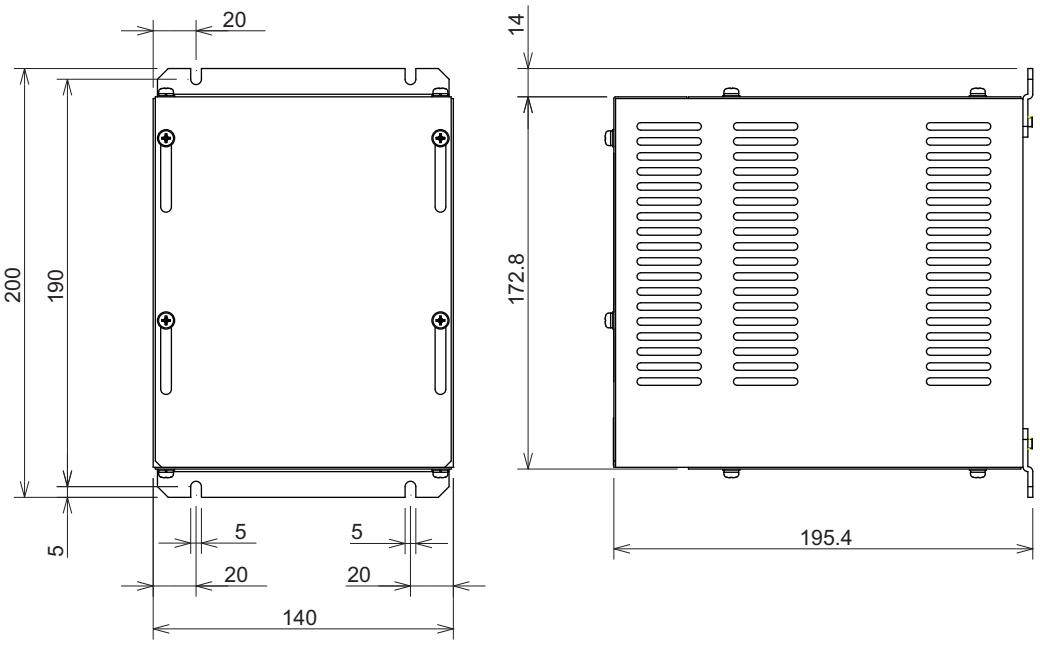
The MDS-D-V1-320W units do not have dynamic brakes built in, so install an external dynamic brake unit.

(1) Specifications

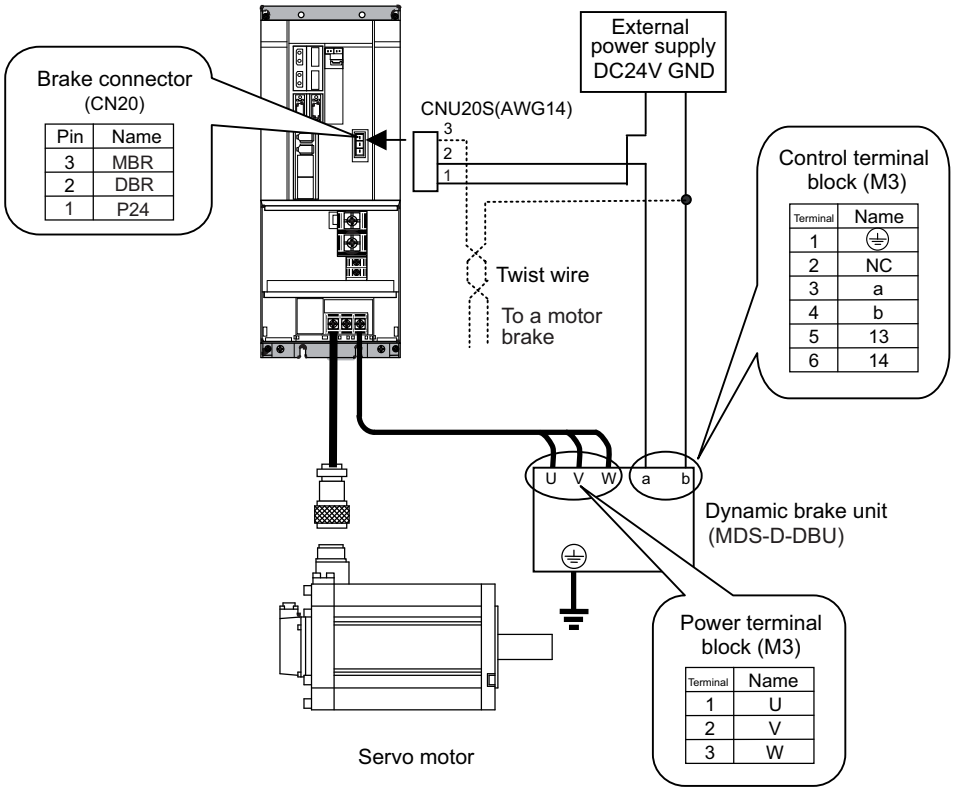
Type	Coil specifications	Wire size	Compatible drive unit	Mass (kg)
MDS-D-DBU	24VDC 160mA	5.5mm^2 or more (For IV wire)	MDS-D-V1-320W	3kg

(2) Outline dimension drawings
MDS-D-DBU

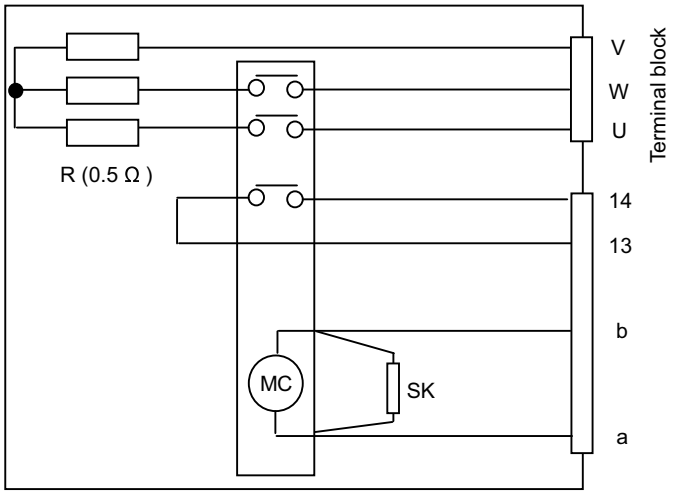
[Unit: mm]



(3) Connecting with the servo drive unit



Internal circuit diagram



⚠ CAUTION

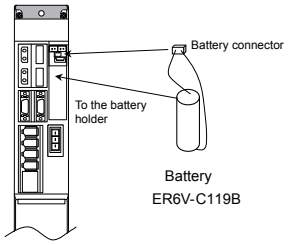
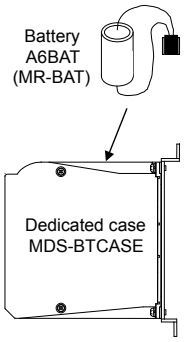
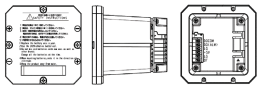
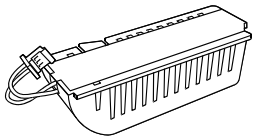
Correctly wire the dynamic brake unit to the servo drive unit.
Do not use for applications other than emergencies (normal braking, etc.). The internal resistor could heat up, and lead to fires or faults.

POINT

When you use a motor with a brake, please wire (between 1pin and 3pin) for the CN20 connector.

Battery (ER6V-C119B, A6BAT, MDS-BTBOX-36, MR-J3BAT)

This battery option may be required to establish absolute position system.

Type	ER6V-C119B	A6BAT(MR-BAT)	**MDS-BTBOX-36**	MR-J3BAT
Installation type	Drive unit with battery holder type	Dedicated case type	Unit and battery integration type	Drive unit with battery holder type
Hazard class	Not applicable	Not applicable (24 or less)	Not applicable	Not applicable
Number of connectable axes	Up to 3 axes	Up to 8 axes (When using dedicated case)	Up to 8 axes	1 axis
Battery change	Possible	Possible	Possible	Possible
Appearance	(1) 	(2) 	(3) 	(4) 

⚠ CAUTION

1. When transporting lithium batteries with means such as by air transport, measures corresponding to the United Nations Dangerous Goods Regulations must be taken.
2. The lithium battery must be transported according to the rules set forth by the International Civil Aviation Organization (ICAO), International Air Transportation Association (IATA), International Maritime Organization (IMO), and United States Department of Transportation (DOT), etc. The packaging methods, correct transportation methods, and special regulations are specified according to the quantity of lithium alloys. The battery unit exported from Mitsubishi is packaged in a container (UN approved part) satisfying the standards set forth in this UN Advisory.
3. To protect the absolute value, do not shut off the servo drive unit control power supply if the battery voltage becomes low (warning 9F).
4. Contact the Service Center when replacing the cell battery.
5. The battery life (backup time) is greatly affected by the working ambient temperature. The above data is the theoretical value for when the battery is used 8 hours a day/240 days a year at an ambient temperature of 25°C. Generally, if the ambient temperature increases, the backup time and useful life will both decrease.

POINT A6BAT is a battery with same specifications as MR-BAT.

(1) Cell battery (ER6V-C119B)

(a) Specifications

Battery option type		Cell battery
		ER6V-C119B (Note 1)
Battery model name		ER6V
Nominal voltage		3.6V
Nominal capacity		2000mAh
Battery safety	Hazard class	-
	Battery shape	Single battery
	Number of batteries used	ER6V x 1
	Lithium alloy content	0.7g
	Mercury content	1g or less
Number of connectable axes		Up to 3 axes (Note 3)
Battery continuous backup time		Up to 2 axes: Approx. 10000 hours 3 axes connected: Approx. 6600 hours
Battery useful life (From date of unit manufacture)		7 years
Data save time in battery replacement		HF/HP/HF-KP series: Approx. 20 hours at time of delivery, approx. 10 hours after 5 years
Back up time from battery warning to alarm occurrence (Note 2)		Up to 2 axes: Approx. 100 hours 3 axes connected: Approx. 60 hours
Mass		20g

(Note 1) ER6V-C119B is a battery built in a servo drive unit. Install this battery only in the servo drive unit that executes absolute position control.

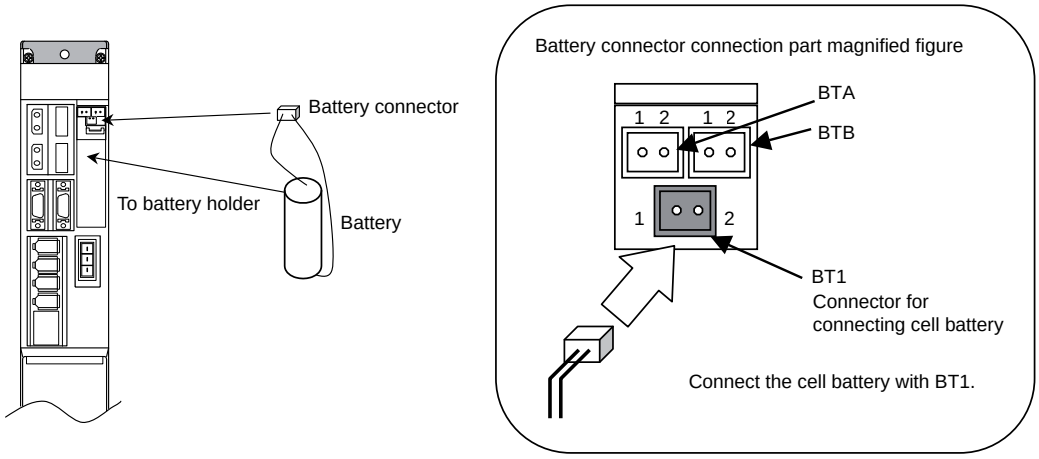
(Note 2) This time is a guideline, so does not guarantee the back up time. Replace the battery with a new battery as soon as a battery warning occurs.

(Note 3) When using ball screw side encoder OSA166ET2NA/OSA105ET2A, both ball screw side encoder and motor side encoder need to be backed up by a battery, so the number of load shaft should be two.

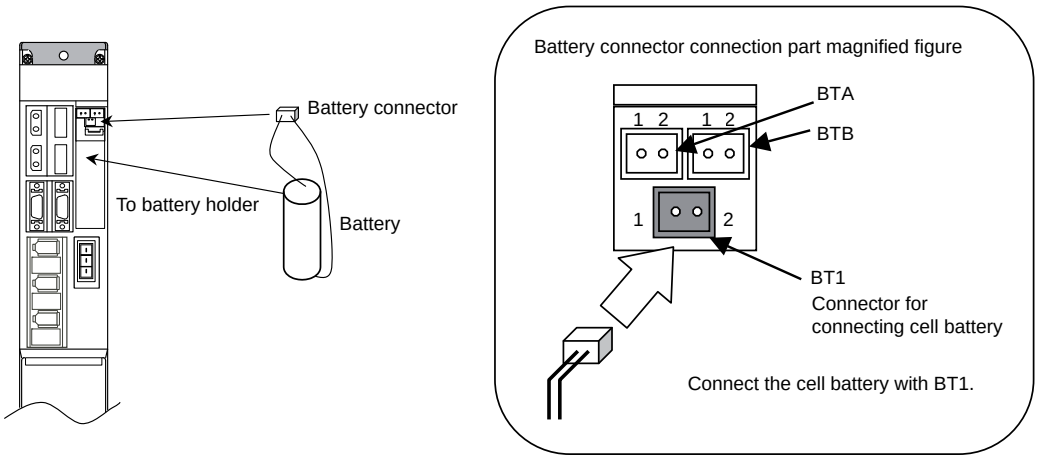
(b) Installing the cell battery

Open the upper front cover of the servo drive unit.Connect the battery connector and then put the battery inside.

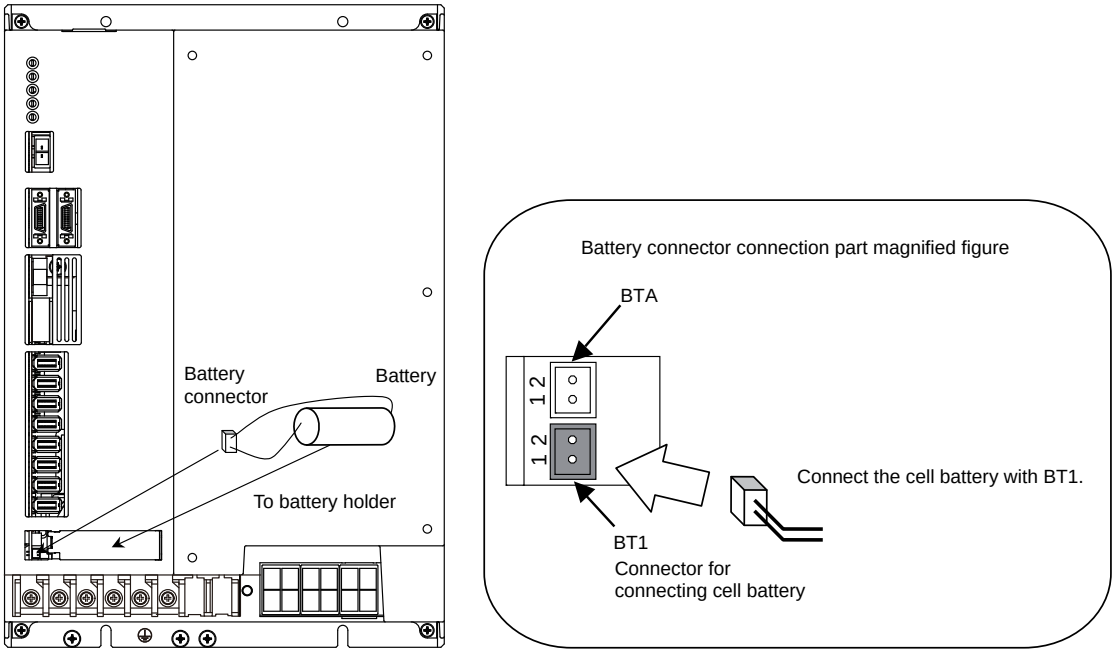
<MDS-D Series>



<MDS-DM-V3 Series>



<MDS-DM-SPV Series>



(Note) When using a cell battery, do not connect the battery unit and MDS-BTBOX-36.

POINT

When using a cell battery built-in drive unit, the wiring between units is not required. The cell battery can be changed in each drive unit.

(2) Cell battery (A6BAT)

Always use the cell battery (A6BAT) in combination with the dedicated case (MDS-BTCASE).

(a) Specifications

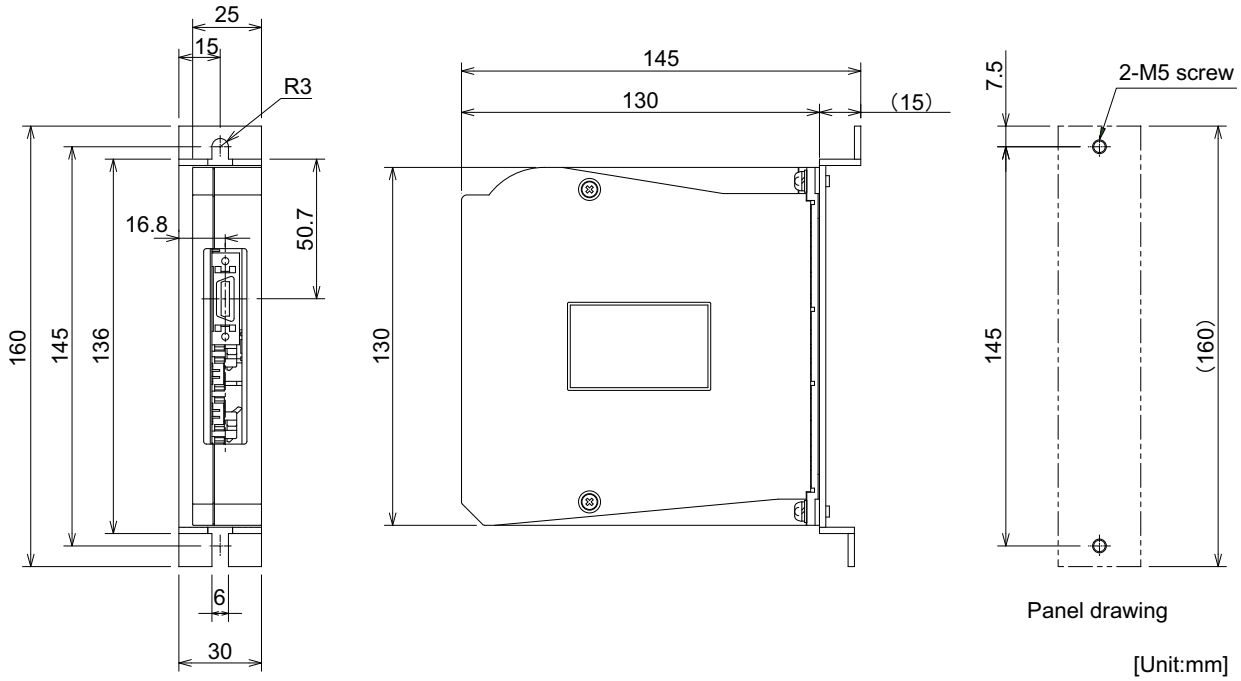
Battery option type		Cell battery
		A6BAT (MR-BAT)
Battery model name		ER17330V
Nominal voltage		3.6V
Nominal capacity		1700mAh
Battery safety	Hazard class	-
	Battery shape	Single battery
	Number of batteries used	A6BAT (MR-BAT) x 1
	Lithium alloy content	0.48g
	Mercury content	1g or less
Number of connectable axes		1 axis / (per 1 battery)
Battery continuous backup time		Approx. 10000 hours
Battery useful life (From date of unit manufacture)		5 years
Data save time in battery replacement		HF/HP/HF-KP series: Approx. 20 hours at time of delivery, approx. 10 hours after 5 years
Back up time from battery warning to alarm occurrence (Note)		Approx. 80 hours
Mass		17g

(Note) This time is a guideline, so does not guarantee the back up time. Replace the battery with a new battery as soon as a battery warning occurs.

(b) Specifications of the dedicated case MDS-BTCASE

Type	MDS-BTCASE
Number of batteries installed	Up to 8 A6BATs (MR-BATs) (Install either 2, 4, 6 or 8 A6BATs (MR-BATs))
Number of connectable axes	Max. 8 axes (It varies depending on the number of batteries installed.) When A6BAT (MR-BAT) x 2, 1 to 2 axis/axes When A6BAT (MR-BAT) x 4, 3 to 4 axes When A6BAT (MR-BAT) x 6, 5 to 6 axes When A6BAT (MR-BAT) x 8, 7 to 8 axes

(c) Outline dimension drawing of the dedicated case MDS-BTCASE



(3) Battery box (MDS-BTBOX-36)

⚠ CAUTION MDS-D-SVJ3 Series have no battery voltage drop warning signal input.
To use MDS-BTBOX-36, be sure to use together with MDS-D/DH/DM Series.

(a) Specifications

Battery option type	Battery box
	MDS-BTBOX-36
Battery model name (Note 1)	size-D alkaline batteries LR20 x 4 pieces
Nominal voltage	3.6V (Unit output), 1.5V (Isolated battery)
Number of connectable axes	Up to 8 axes
Battery continuous backup time (Note 2)	Approx. 10000 hours (when 8 axes are connected, cumulative time in non-energized state)
Back up time from battery warning to alarm occurrence (Note 2)	Approx. 336 hours (when 8 axes are connected)

(Note 1) Install commercially-available alkaline dry batteries into MDS-BTBOX-36. The batteries should be procured by customers. Make sure to use new batteries that have not passed the expiration date. We recommend you to replace the batteries in the one-year cycle.

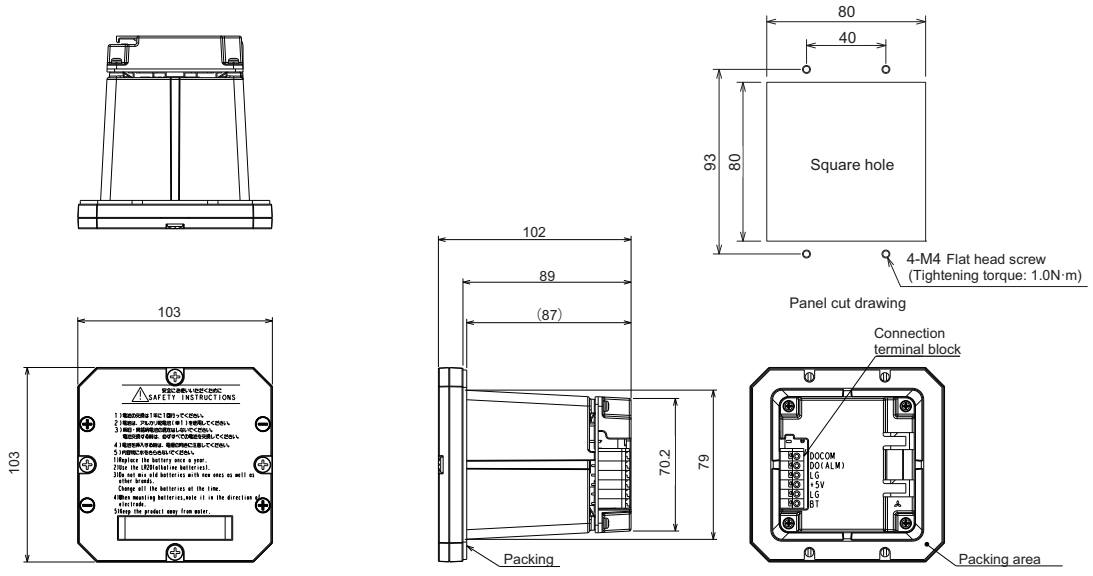
(Note 2) This time is a guideline, so does not guarantee the back up time. Replace the battery with a new battery as soon as a battery warning (9F) occurs.

(b) Explanation of terminals

		Name	Description
(1)	Power supply output for absolute position encoder backup	BT	3.6V output for absolute position encoder backup
(2)		LG	Ground
(3)	Power supply input for battery voltage drop detection circuit	+5V	5V power supply input for battery voltage drop detection circuit
(4)		LG	Ground
(5)	Battery voltage drop warning signal output	DO(ALM)	Battery voltage drop warning output
(6)		DOCOM	DO output common

(c) Outline dimension drawings

[Unit: mm]



POINT As soon as the battery warning has occurred, replace the batteries with new ones.
Make sure to use new batteries that have not passed the expiration date. We recommend you to replace the batteries in the one-year cycle.

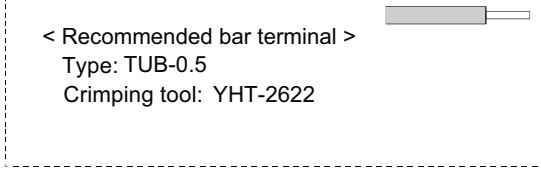
⚠ CAUTION When installing the battery box on the panel, it may be damaged if the screw is tightened too much.
Make sure the tightening torque of the screw.

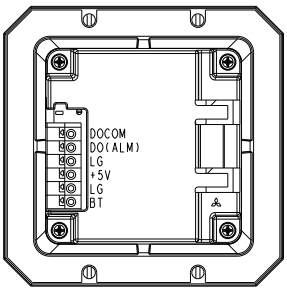
(d) Cable connection procedure

When connecting the terminal block, select a cable for the terminal block referring to the applicable size as a guide. Connect the cable by crimping the bare conductor or bar terminal. Do not pre-solder the wire.

< Range of applicable terminal block cable >
Twisted wire: 0.2mm^2 to 1.25mm^2

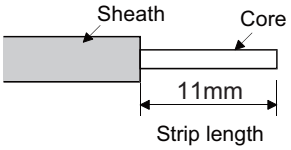
< Recommended bar terminal >
Type: TUB-0.5
Crimping tool: YHT-2622





- Processing of power insulator

The strip length of the wire insulator should be 11mm.



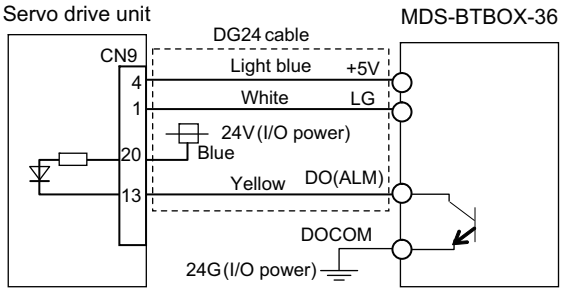
Retwist and straighten the core as shown below.

Unraveling or bending of core

Make sure to retwist and straighten the core

(e) Wiring of the battery voltage drop warning output

The battery voltage drop warning is detected in the MDS-BTBOX-36 and output to the servo drive unit as digital signal.Connect the battery voltage drop warning signal to one of the servo drive units supported by MDS-BTBOX-36. For the connected servo axis, set the servo parameter "SV082/bitF-C" to "2" to enable this signal input. When using 2 or 3-axis drive unit, set the value to one of the axes and set other axes in the same unit to "0" (No signal).



Battery voltage drop warning signal connection diagram

(f) When backing up for more than 8 axes

Add a MDS-BTBOX-36 so that the number of connectable axes for a battery unit is 8 axes or less.

For all of servo drive units supported by one MDS-BTBOX-36, start the control powers ON simultaneously.

⚠ CAUTION

1. The battery voltage drop warning signal and SLS (Safely Limited Speed) function door state signal cannot be connected to the same drive unit. To use these function together as a system, connect to the different drive unit.
2. Battery voltage drop warning (9F) can also occur when the cable between the battery box and drive unit is broken.
3. For 2-axis or 3-axis drive unit, the parameter error "E4" or drivers communication error "82" occurs at all the axes when the setting of SV082(SSF5)/bitF-C differs according to axes (except 0 setting).
4. The drive unit which is connected to the battery box and cell battery cannot be used together.
5. Replace the batteries with new ones without turning the control power of the drive unit OFF immediately after the battery voltage drop alarm (9F) has been detected.
6. Replace the batteries while applying the control power of all drive units which are connected to the battery box.
7. When changing the wiring of the CN9 control input, change after SV082(SSF5)/bitF-C is set to 0. Otherwise unexpected alarms can be detected because of a mismatch of the control input signal and setting parameter.
8. Battery voltage drop warning (9F) is released by turning the drive unit power ON again after replacing the battery.

(4) Cell battery (MR-J3BAT)

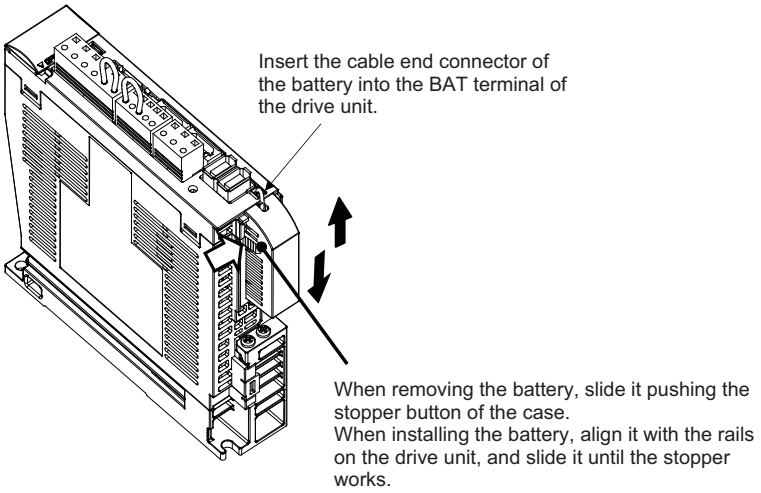
(a) Specifications

Battery option type		Cell battery
		MR-J3BAT(Note 1)
Battery model name		ER6V
Nominal voltage		3.6V
Nominal capacity		2000mAh
Battery safety	Hazard class	-
	Battery shape	Single battery
	Number of batteries used	ER6V×1
	Lithium alloy content	0.7g
	Mercury content	1g or less
Number of connectable axes		1 axis
Battery continuous backup time		Approx. 20000 hours
Battery useful life (From date of unit manufacture)		7 years
Data save time in battery replacement		HF/HF-KP series: approx. 20 hours at time of delivery, approx. 10 hours after 5 years
Back up time from battery warning to alarm occurrence (Note 2)		Approx. 100 hours
Mass		20g

(Note 1) MR-J3BAT is a battery built in a servo drive unit. Install this battery only in the servo drive unit that executes absolute position control.

(Note 2) This time is a guideline, so does not guarantee the back up time. Replace the battery with a new battery as soon as a battery alarm occurs.

(b) Installing the cell battery



⚠ CAUTION

1. When transporting lithium batteries with means such as by air transport, measures corresponding to the United Nations Dangerous Goods Regulations must be taken.
2. The lithium battery must be transported according to the rules set forth by the International Civil Aviation Organization (ICAO), International Air Transportation Association (IATA), International Maritime Organization (IMO), and United States Department of Transportation (DOT), etc. The packaging methods, correct transportation methods, and special regulations are specified according to the quantity of lithium alloys. The battery unit exported from Mitsubishi is packaged in a container (UN approved part) satisfying the standards set forth in this UN Advisory.
3. To protect the absolute value, do not shut off the servo drive unit control power supply if the battery voltage becomes low (warning 9F).
4. Contact the Service Center when replacing the battery.
5. The battery life (backup time) is greatly affected by the working ambient temperature. The above data is the theoretical value for when the battery is used 8 hours a day/240 days a year at an ambient temperature of 25°C. Generally, if the ambient temperature increases, the backup time and useful life will both decrease.

(5) Converged battery option

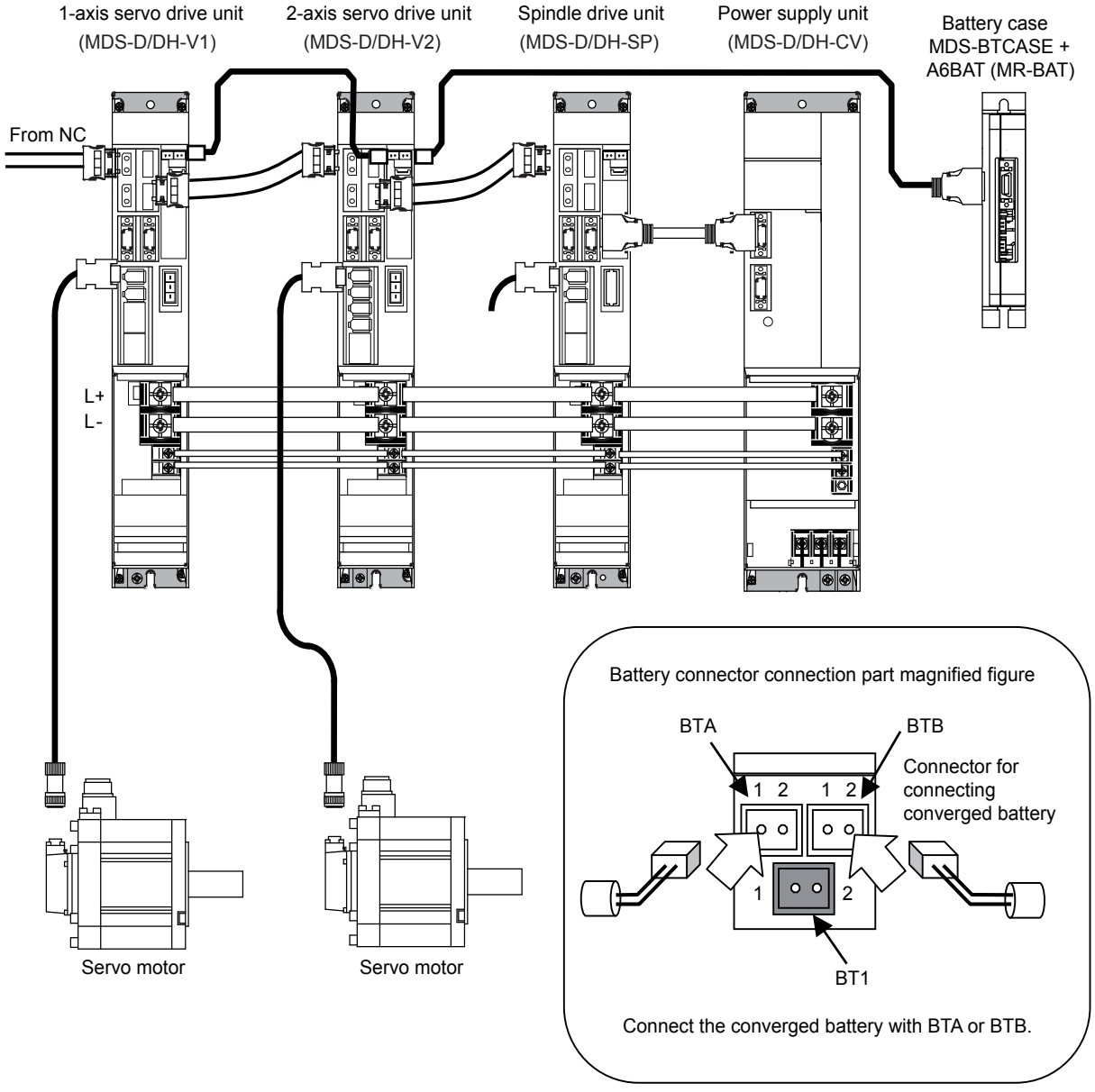
When using the following battery options, the wiring between units which configure an absolute position system is required.

Battery option type	Installation type	Battery charge
A6BAT (MR-BAT)	Dedicated case type (built-in MDS-BTCASE)	Possible
MDS-BTBOX-36	Unit and battery integration type	Possible

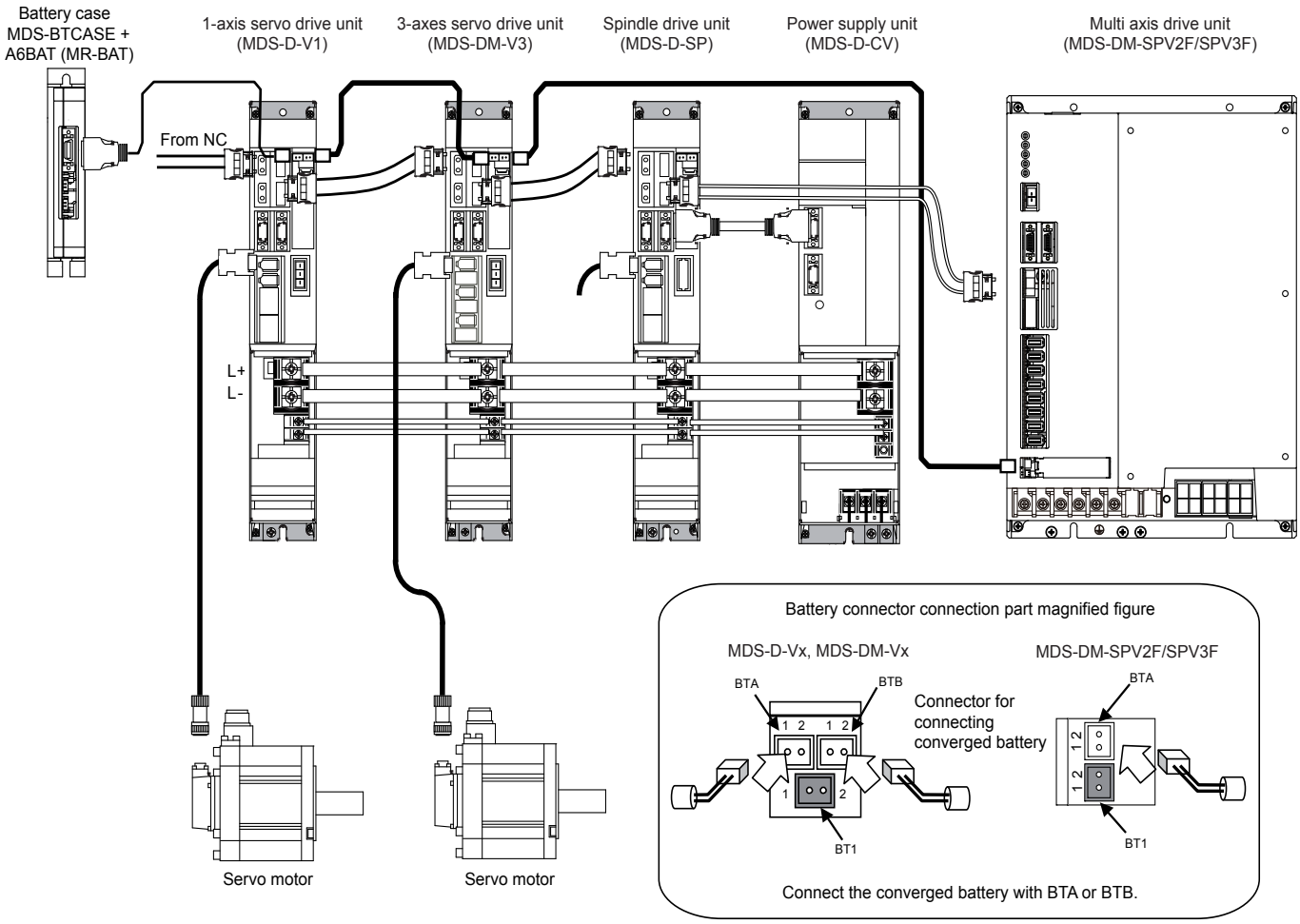
System configuration

<A6BAT(MR-BAT) Series>

(a) MDS-D Series



(b) MDS-DM Series

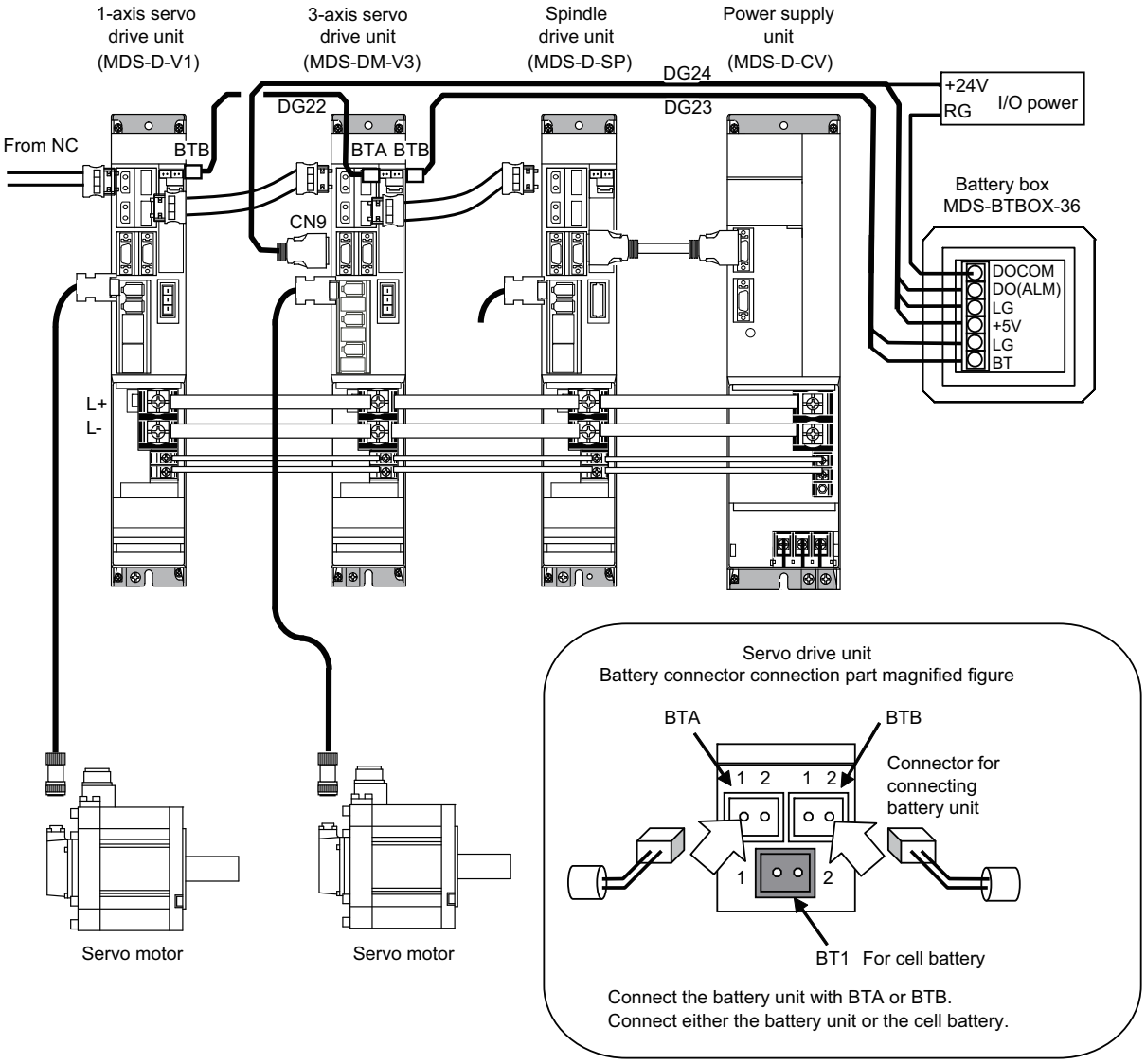


POINT

1. This wiring is not required for the drive unit or spindle drive unit which is not an absolute system.
2. Use a shield cable for wiring between drive units.
   The drive unit could malfunction.

< MDS-BTBOX-36 >

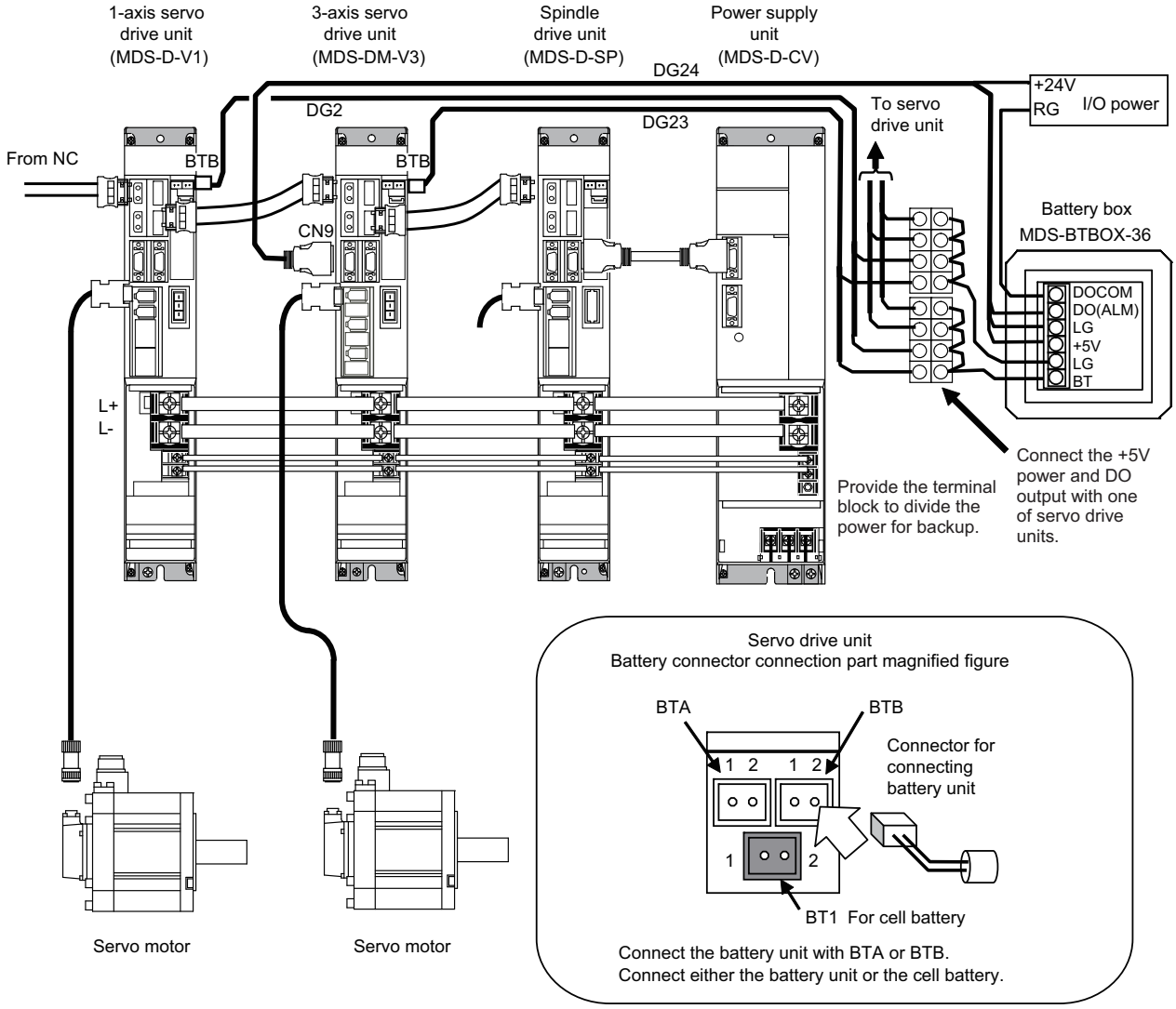
(a) MDS-D-V1/V2 Series, MDS-DM-V3 Series connected in serial



⚠CAUTION

1. 24V power for DO output must always be turned ON before the NC power input.
2. Spindle drive unit has no battery voltage drop warning function. Wiring to CN9 of drive unit must be always connected to servo drive unit.
3. The total length of battery cable (from the battery unit to the last connected drive unit) must be 3m or less.

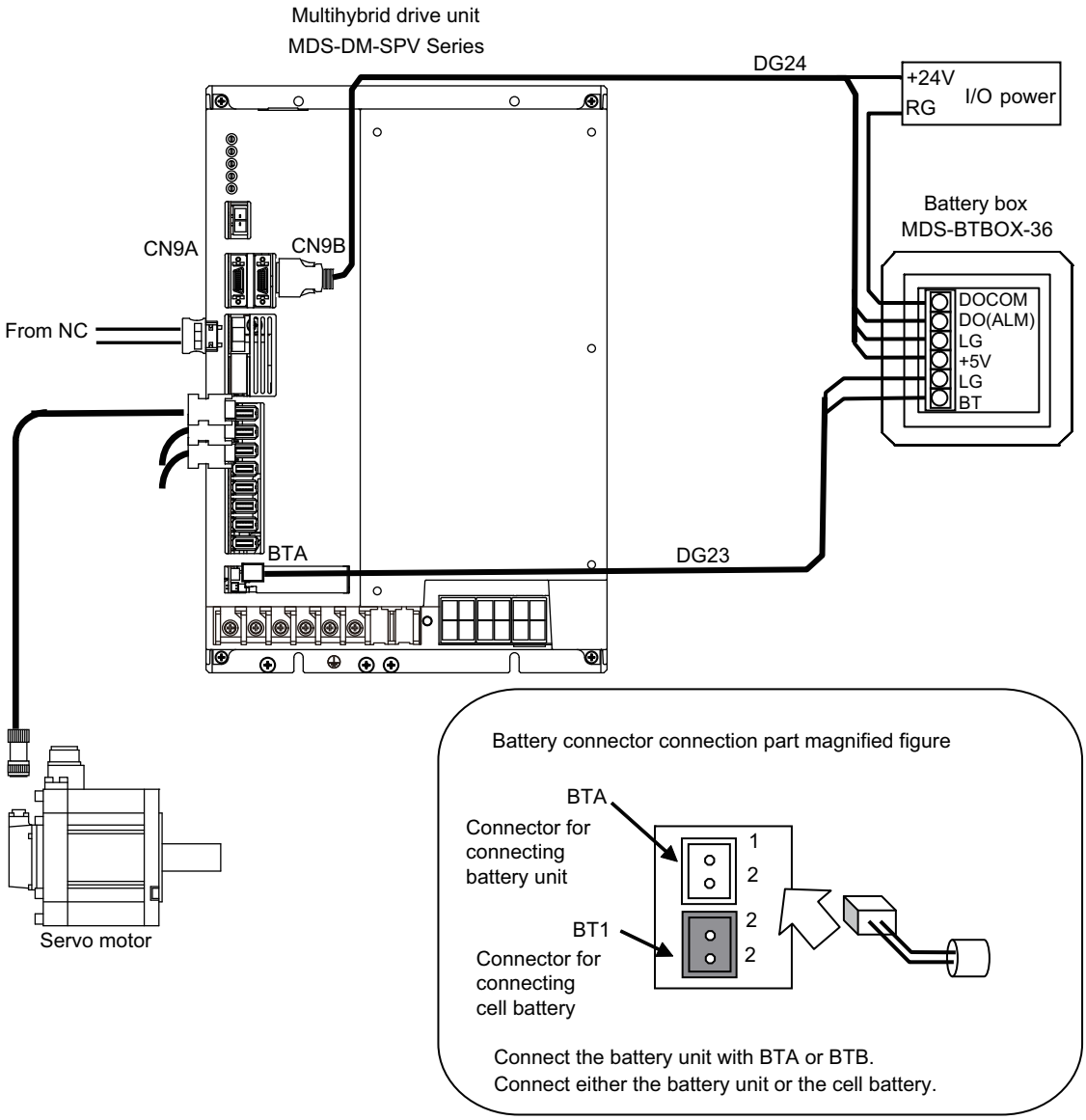
(b) MDS-D-V1/V2 Series, MDS-DM-V3 Series connected in parallel



⚠ CAUTION

1. 24V power for DO output must always be turned ON before the NC power input.
2. Spindle drive unit has no battery voltage drop warning function. Wiring to CN9 of drive unit must be always connected to servo drive unit.
3. The total length of battery cable (from the battery unit to the last connected drive unit) must be 3m or less.

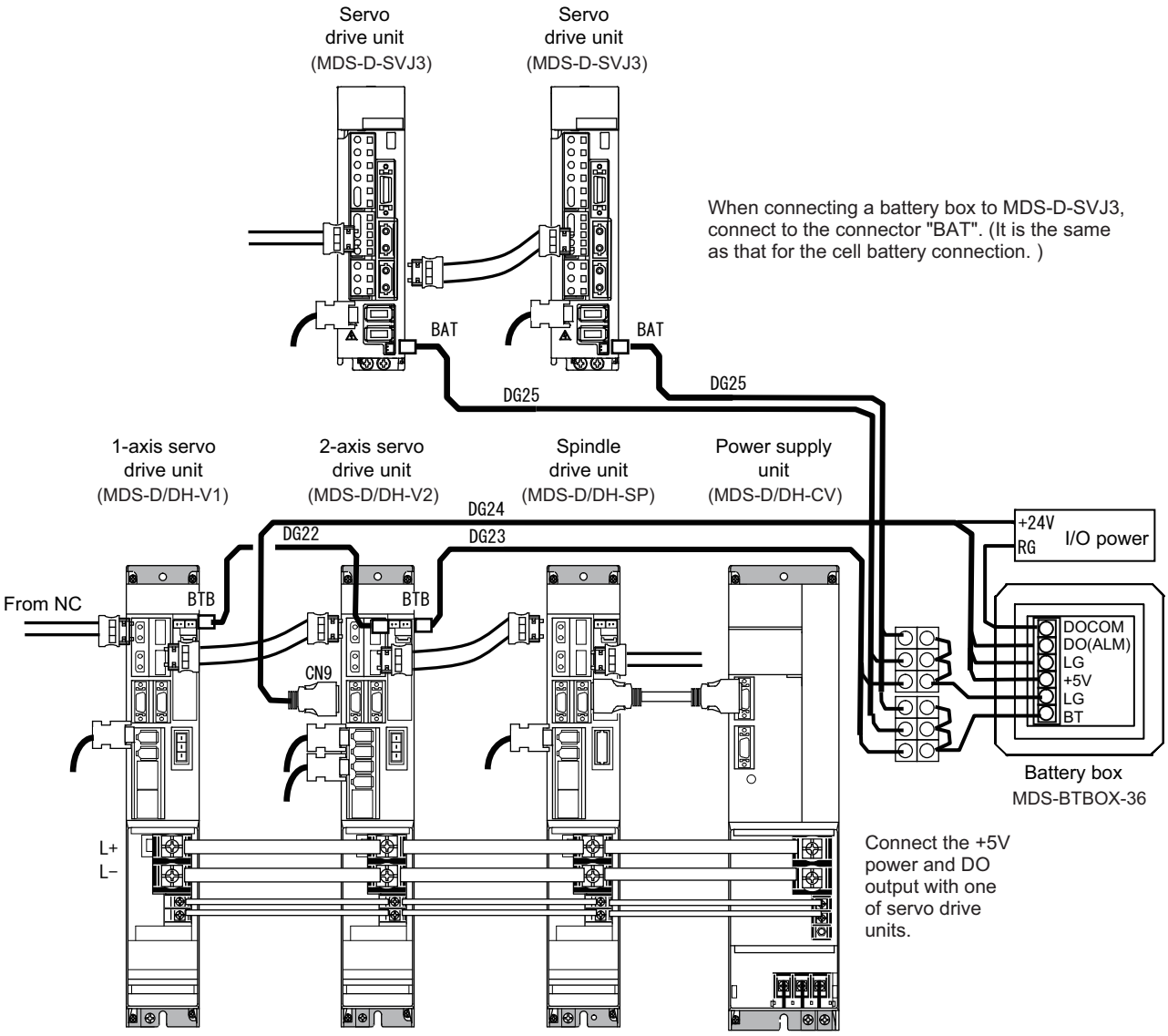
(c) MDS-DM-SPV Series



⚠ CAUTION

1. 24V power for DO output must always be turned ON before the NC power input.
2. Connect the cable for alarm with CN9B on the drive unit. CN9A cannot receive the battery voltage drop warning.
3. The total length of battery cable (from the battery unit to the last connected drive unit) must be 3m or less.

(d) MDS-D-SVJ3 Series



⚠CAUTION

1. MDS-D-SVJ3 Series have no battery voltage drop warning signal input. Connect to CN9 of MDS-D/DH/DM Series servo drive unit.
2. 24V power for DO output must always be turned ON before the NC power input.
3. Spindle drive unit has no battery voltage drop warning function. Wiring to CN9 of drive unit must be always connected to servo drive unit.
4. The total length of battery cable (from the battery unit to the last connected drive unit) must be 3m or less.

Regenerative option

The regenerative resistor generates heats, so wire and install the unit while taking care to safety. When using the regenerative resistor, make sure that flammable matters, such as cables, do not contact the resistor, and provide a cover on the machine so that dust or oil does not accumulate on the resistor and ignite.

(1) Combination with servo drive unit

Corresponding servo drive unit	Standard built-in regenerative resistor		External option regenerative resistor						
			MR-RB032	MR-RB12	MR-RB32	MR-RB30	MR-RB50	MR-RB31	MR-RB51
					GZG200W120OHMK ×3 units	GZG200W39OHMK ×3 units	GZG300W39OHMK ×3 units	GZG200W20OHMK ×3 units	GZG300W20OHMK ×3 units
	Parameter setting value		1200h	1300h	1400h	1500h	1600h	1700h	1800h
	Regenerative capacity		30W	100W	300W	300W	500W	300W	500W
		Resistance value	40Ω	40Ω	40Ω	13Ω	13Ω	6.7Ω	6.7Ω
MDS-D-SVJ3-03/03NA	10W	100Ω	○	○					
MDS-D-SVJ3-04/04NA	10W	100Ω	○	○					
MDS-D-SVJ3-07/07NA	20W	40Ω	○	○	○				
MDS-D-SVJ3-10/10NA	100W	13Ω				○	○		
MDS-D-SVJ3-20/20NA	100W	9Ω						○	○
MDS-D-SVJ3-35/35NA	100W	9Ω						○	○

Corresponding servo drive unit	Standard built-in regenerative resistor		External option regenerative resistor					
			FCUA-RB22	FCUA-RB37	FCUA-RB55	R-UNIT2	FCUA-RB55 2 units connected in parallel	FCUA-RB75/2 2 units connected in parallel
	Parameter setting value		2400h	2500h	2600h	2900h	2E00h	2D00h
	Regenerative capacity		155W	185W	340W	700W	680W	680W
		Resistance value	40Ω	25Ω	20Ω	15Ω	10Ω	15Ω
MDS-D-SVJ3-03/03NA	10W	100Ω						
MDS-D-SVJ3-04/04NA	10W	100Ω						
MDS-D-SVJ3-07/07NA	20W	40Ω	○					
MDS-D-SVJ3-10/10NA	100W	13Ω		○	○	○		○
MDS-D-SVJ3-20/20NA	100W	9Ω				○	○	○
MDS-D-SVJ3-35/35NA	100W	9Ω					○	

(2) Combination with servo drive unit

⚠CAUTION The regenerative resistor is not incorporated in the spindle drive unit. Make sure to install the external option regenerative resistor.

Corresponding servo drive unit		External option regenerative resistor			
		MR-RB12	MR-RB32	MR-RB30	MR-RB50
			GZG200W120 OHMK×3 units	GZG200W39 OHMK×3 units	GZG300W39 OHMK×3 units
	Parameter setting value	1300h	1400h	1500h	1600h
	Regenerative capacity	100W	300W	300W	500W
	Resistance value	40Ω	40Ω	13Ω	13Ω
MDS-D-SPJ3-075/075NA	---	○	○		
MDS-D-SPJ3-22/22NA	---			○	○
MDS-D-SPJ3-37/37NA	---			○	○
MDS-D-SPJ3-55/55NA	---			○	○
MDS-D-SPJ3-75/75NA	---				○
MDS-D-SPJ3-110/110NA	---				

Corresponding servo drive unit		External option regenerative resistor			
		FCUA-RB22	FCUA-RB37	FCUA-RB55	FCUA RB75/2 (1 unit)
	Parameter setting value	2400h	2500h	2600h	2700h
	Regenerative capacity	155W	185W	340W	340W
	Resistance value	40Ω	25Ω	20Ω	30Ω
MDS-D-SPJ3-075/075NA	---	○	○		
MDS-D-SPJ3-22/22NA	---	○	○	○	○
MDS-D-SPJ3-37/37NA	---		○	○	○
MDS-D-SPJ3-55/55NA	---			○	
MDS-D-SPJ3-75/75NA	---				
MDS-D-SPJ3-110/110NA	---				

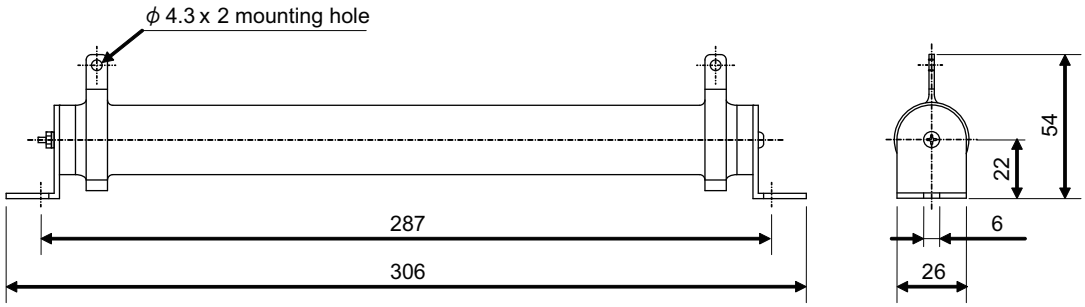
Corresponding servo drive unit		External option regenerative resistor						
		R-UNIT1	R-UNIT2	R-UNIT3	R-UNIT4	R-UNIT5	FCUA-RB55 2 units connected in parallel	FCUA-RB75/2 2 units connected in parallel
	Parameter setting value	2800h	2900h	2A00h	2B00h	2C00h	2E00h	2D00h
	Regenerative capacity	700W	700W	2100W	2100W	3100W	680W	680W
	Resistance value	30Ω	15Ω	15Ω	10Ω	10Ω	10Ω	15Ω
MDS-D-SPJ3-075/075NA	---							
MDS-D-SPJ3-22/22NA	---	○	○	○				○
MDS-D-SPJ3-37/37NA	---	○	○	○	○	○	○	○
MDS-D-SPJ3-55/55NA	---		○	○	○	○	○	○
MDS-D-SPJ3-75/75NA	---		○	○	○	○	○	○
MDS-D-SPJ3-110/110NA	---				○	○		

⚠CAUTION Only the designated combination can be used for the external option regenerative resistor and drive unit.
There is a risk of fire, so always use the designated combination.

(3) External option regenerative resistor

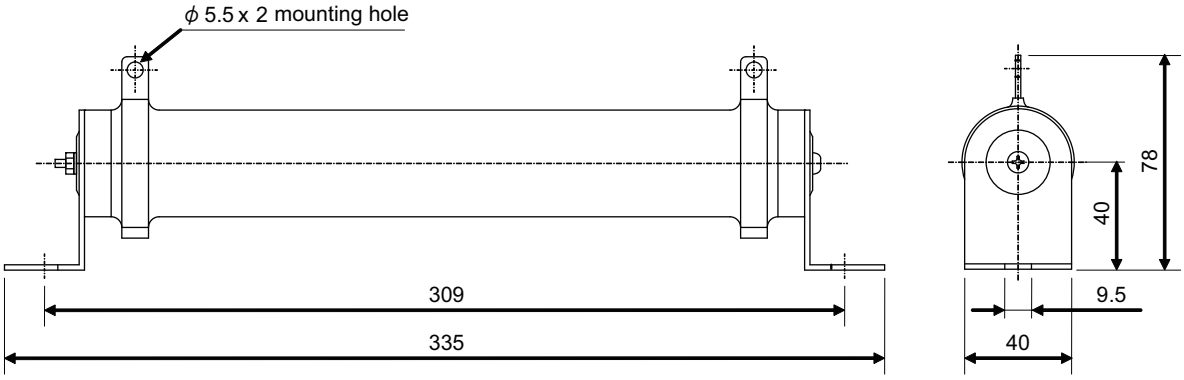
< GZG200W39OHMK, GZG200W120OHMK >

[Unit:mm]



< GZG300W39OHMK >

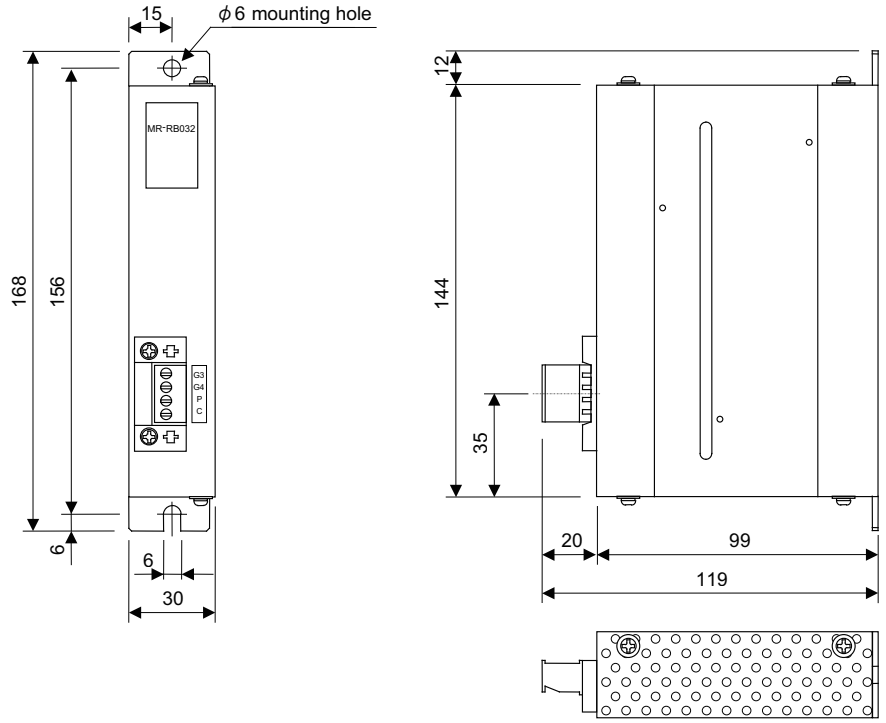
[Unit:mm]



(4) External option regenerative resistor unit

< MR-RB032 >

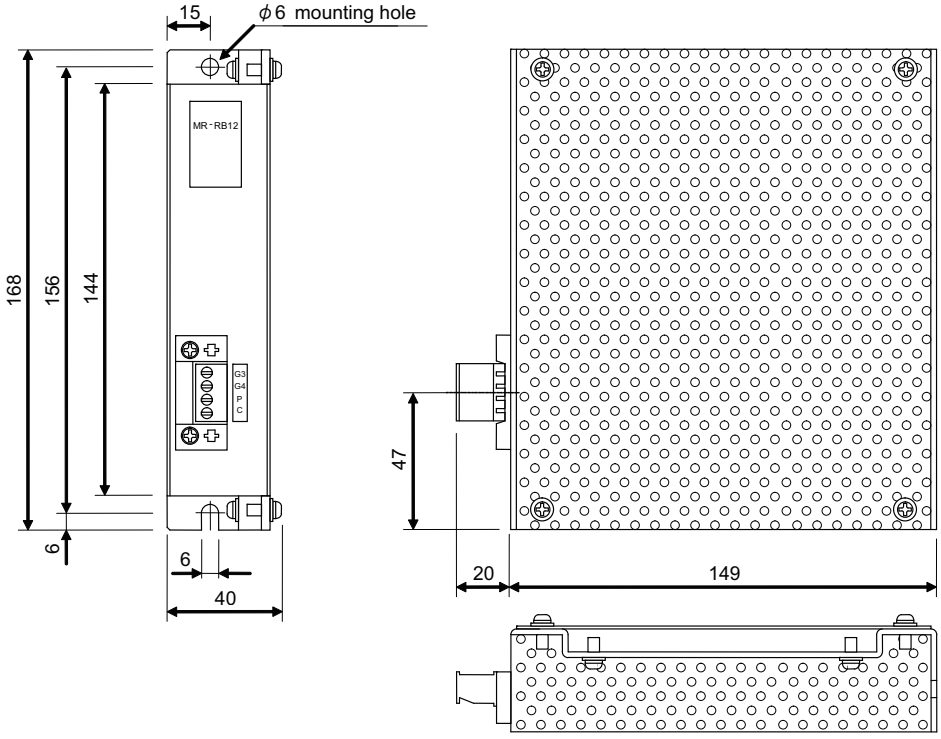
[Unit:mm]



Type	Regenerative capacity (W)	Resistance value (Ω)	Mass (kg)
MR-RB032	30	40	0.5

< MR-RB12 >

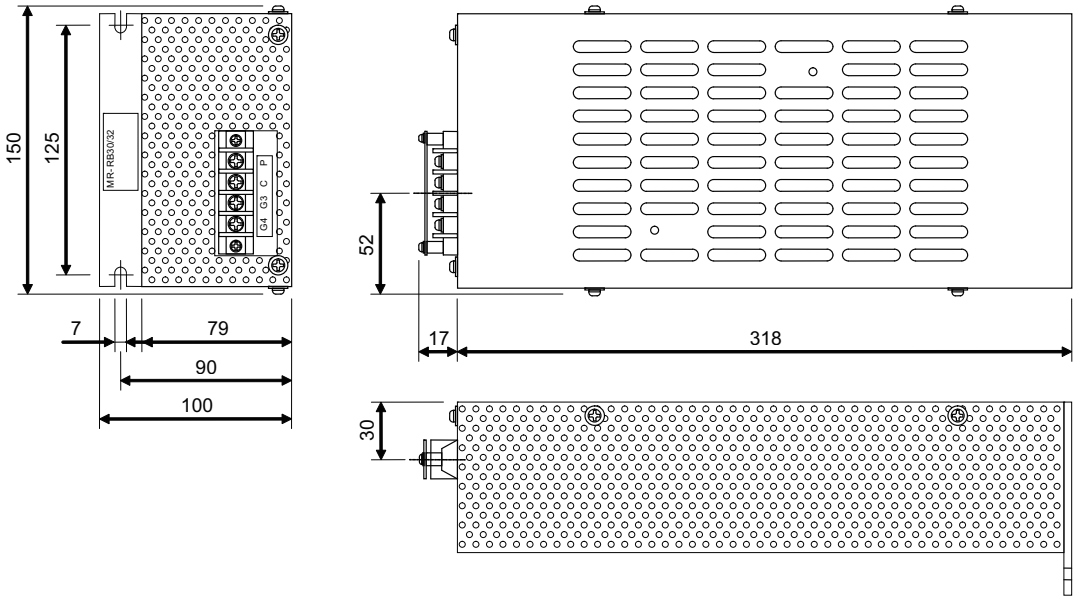
[Unit:mm]



Type	Regenerative capacity (W)	Resistance value (Ω)	Mass (kg)
MR-RB12	100	40	0.8

< MR-RB32, MR-RB30, MR-RB31 >

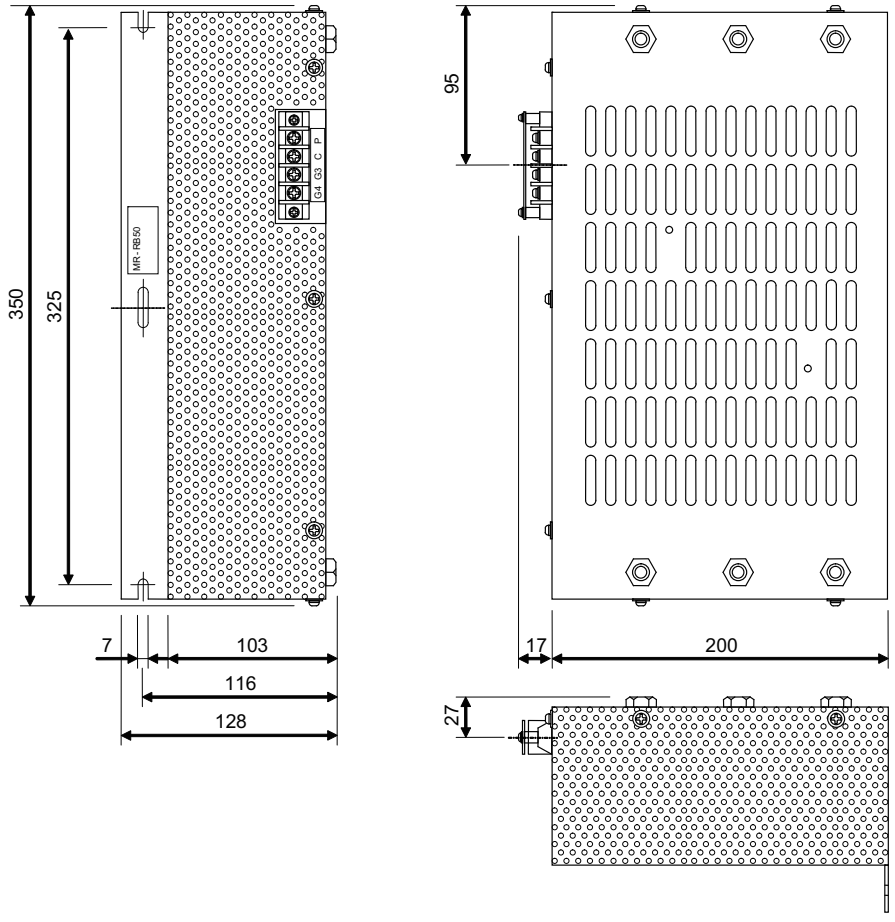
[Unit:mm]



Type	Regenerative capacity (W)	Resistance value (Ω)	Mass (kg)
MR-RB32	300	40	2.9
MR-RB30	300	13	2.9
MR-RB31	300	6.7	2.9

< MR-RB50, MR-RB51 >

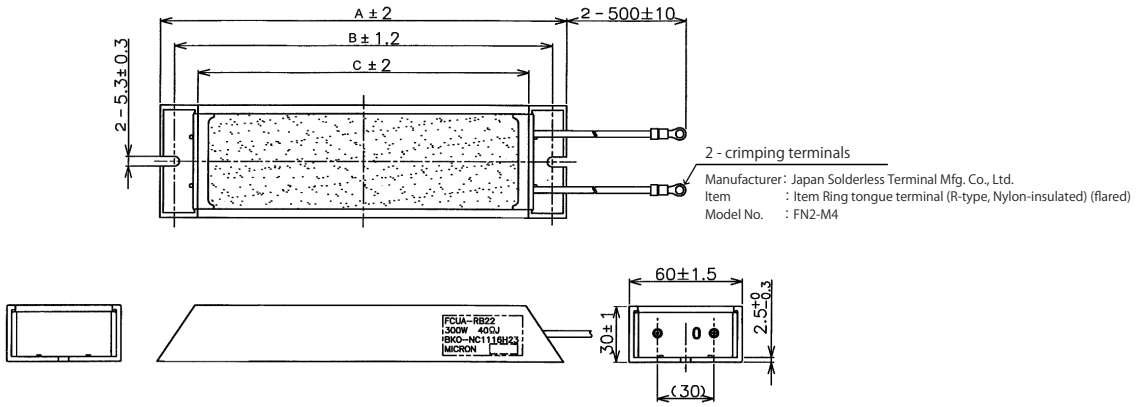
[Unit:mm]



Type	Regenerative capacity (W)	Resistance value (Ω)	Mass (kg)
MR-RB50	500	13	5.6
MR-RB51	500	6.7	5.6

< FCUA-RB22, FCUA-RB37 >

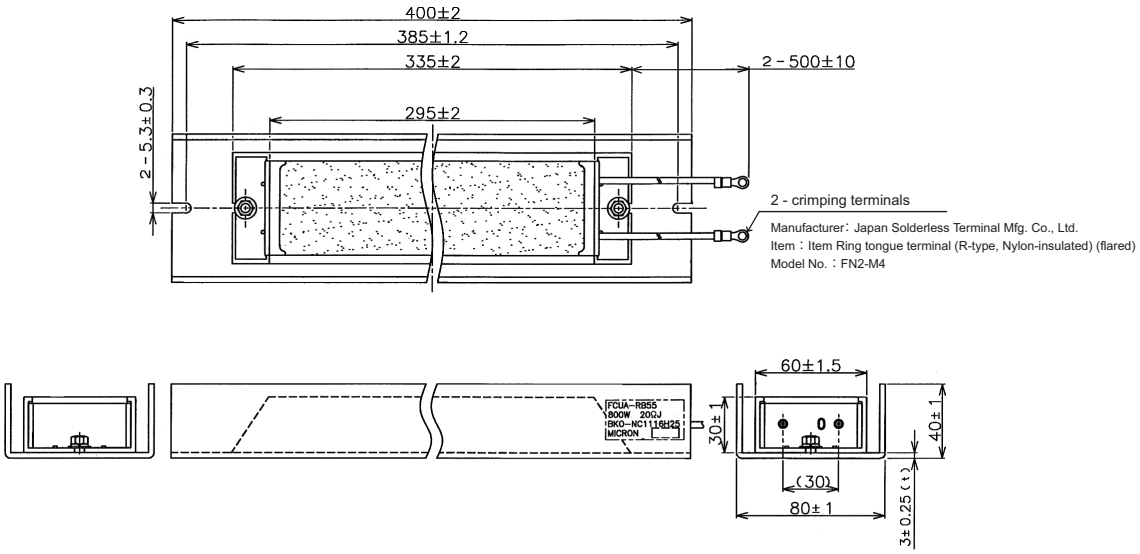
[Unit:mm]



Type	Regenerative capacity (W)	Outline dimension (mm)			Resistance value (Ω)	Mass (kg)
		A	B	C		
FCUA-RB22	155	215	200	175	40	0.8
FCUA-RB37	185	335	320	295	25	1.2

< FCUA-RB55, FCUA-RB75/2>

[Unit:mm]



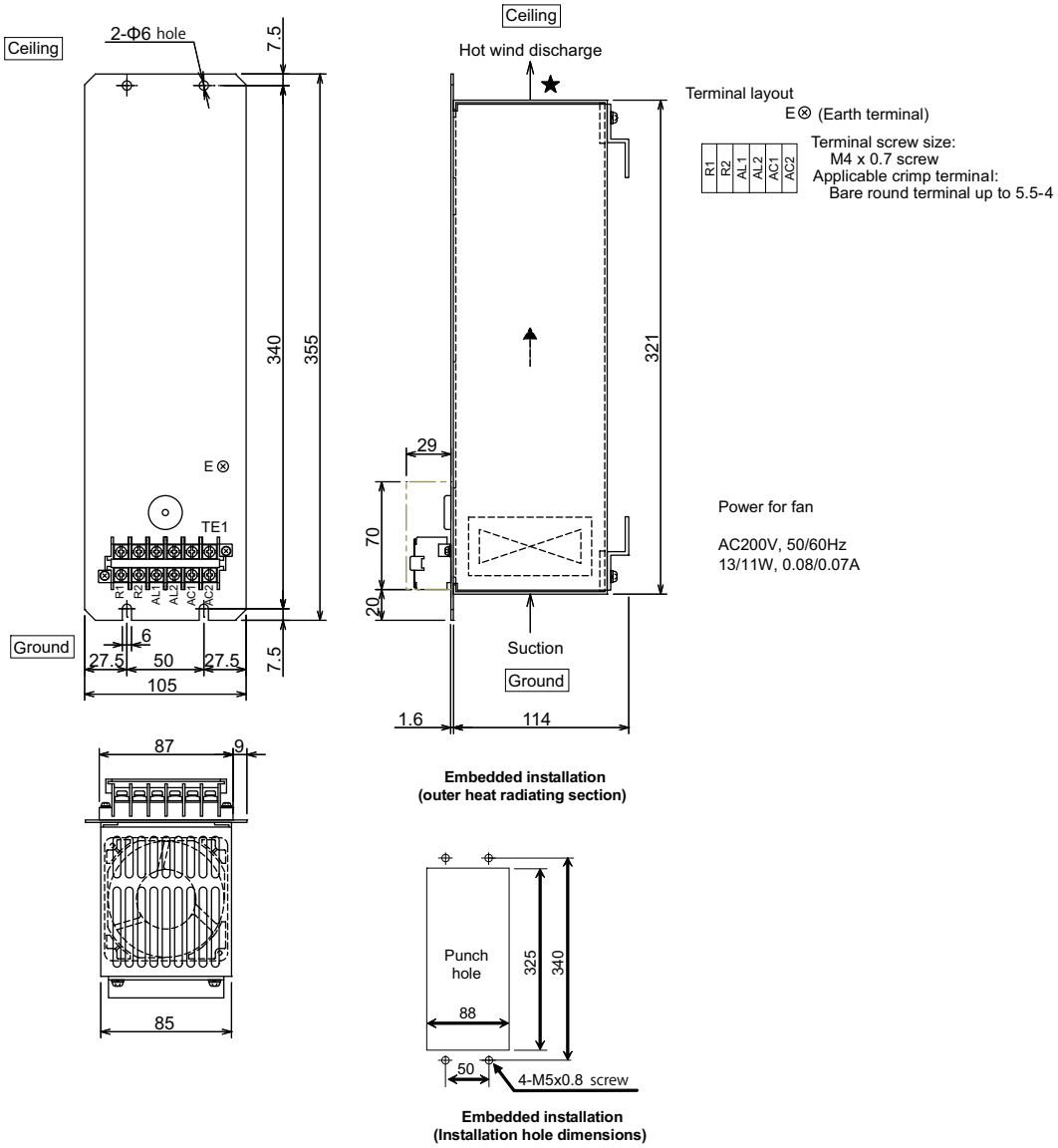
Type	Regenerative capacity (W)	Resistance value (Ω)	Mass (kg)
FCUA-RB55	340	20	2.2
FCUA-RB75/2 (2 units connected in parallel)	680	15	2.2

⚠ CAUTION

1. When using an operation pattern in which the regenerative resistor is used at a high frequency, the surface of the resistor may exceed 300°C, so take care to the installation and the heat radiation. Do not install the resistor in a place where it can be easily touched by hand or body parts as touching could lead to burns. Install a well-ventilated protective cover (punched metal, etc.) if body parts might come in contact.
2. Installation of the regenerative resistor on a metallic surface outside the panel is recommended to improve the heat radiating effect.
3. Install the regenerative resistor so that the section where the lead wires are led out is not at the top of the resistor.

< R-UNIT-1, -2 >

[Unit:mm]



Type	Regenerative capacity (W)	Resistance value (Ω)	Mass (kg)
R-UNIT-1	700	30	4.3
R-UNIT-2	700	15	4.4

⚠ CAUTION

1.Do not wire or arrange other devices in front of the section marked with a ★ as extremely hot wind will be blown out.

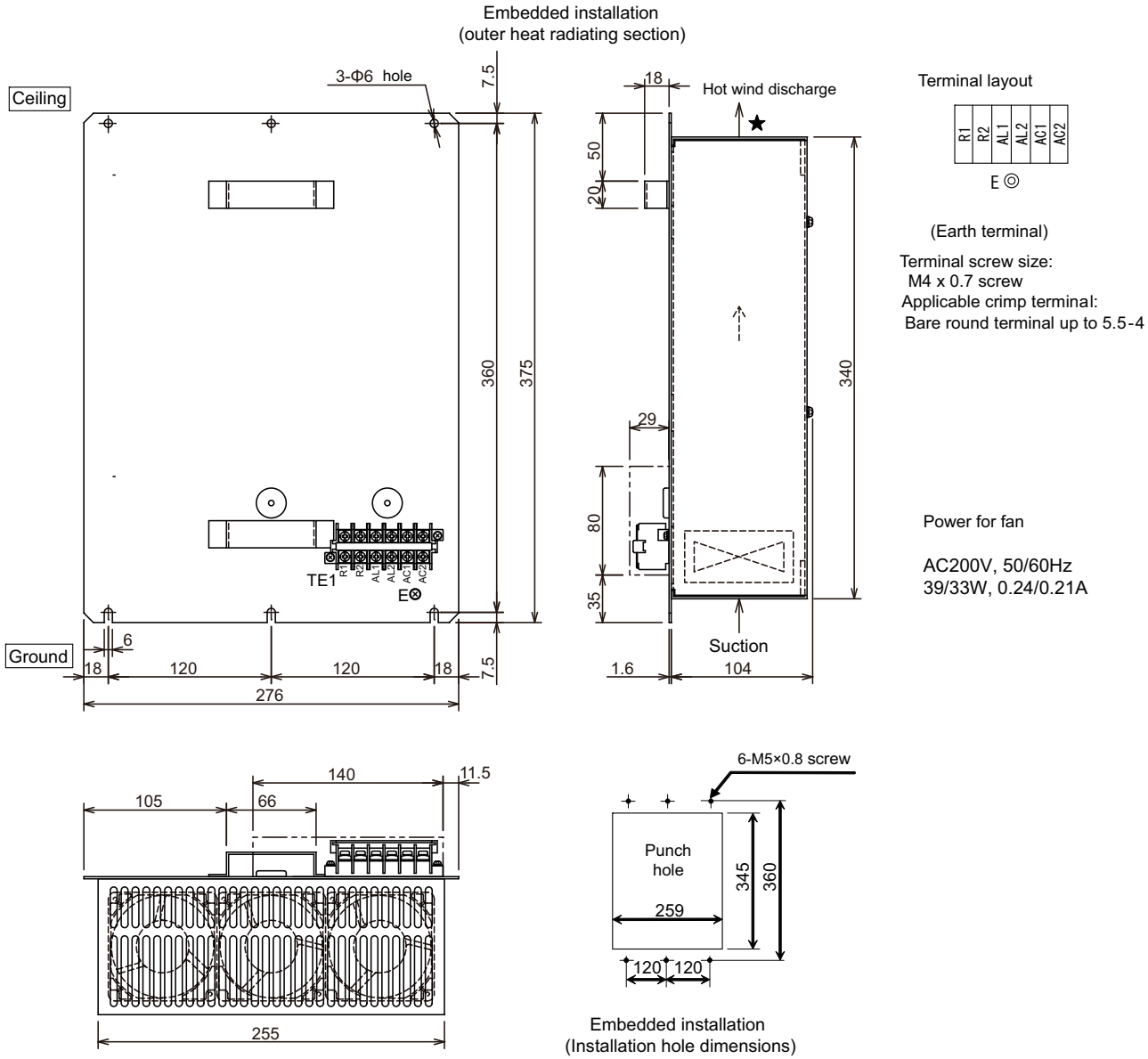
2. For the installation direction of this resistor, the "Ceiling" is the top and "Ground" is the bottom.

3. Touching the resistor when it is hot could lead to burns. Always install a protective cover or consider the installation site so that workers will not touch the unit.

4. The resistor's heating value will differ according to the acceleration/deceleration frequency, speed being used and the load GD^2 conditions, etc. However, install the resistor so that the hot wind is always exhausted to outside the panel.

< R-UNIT-3, -4 >

[Unit:mm]



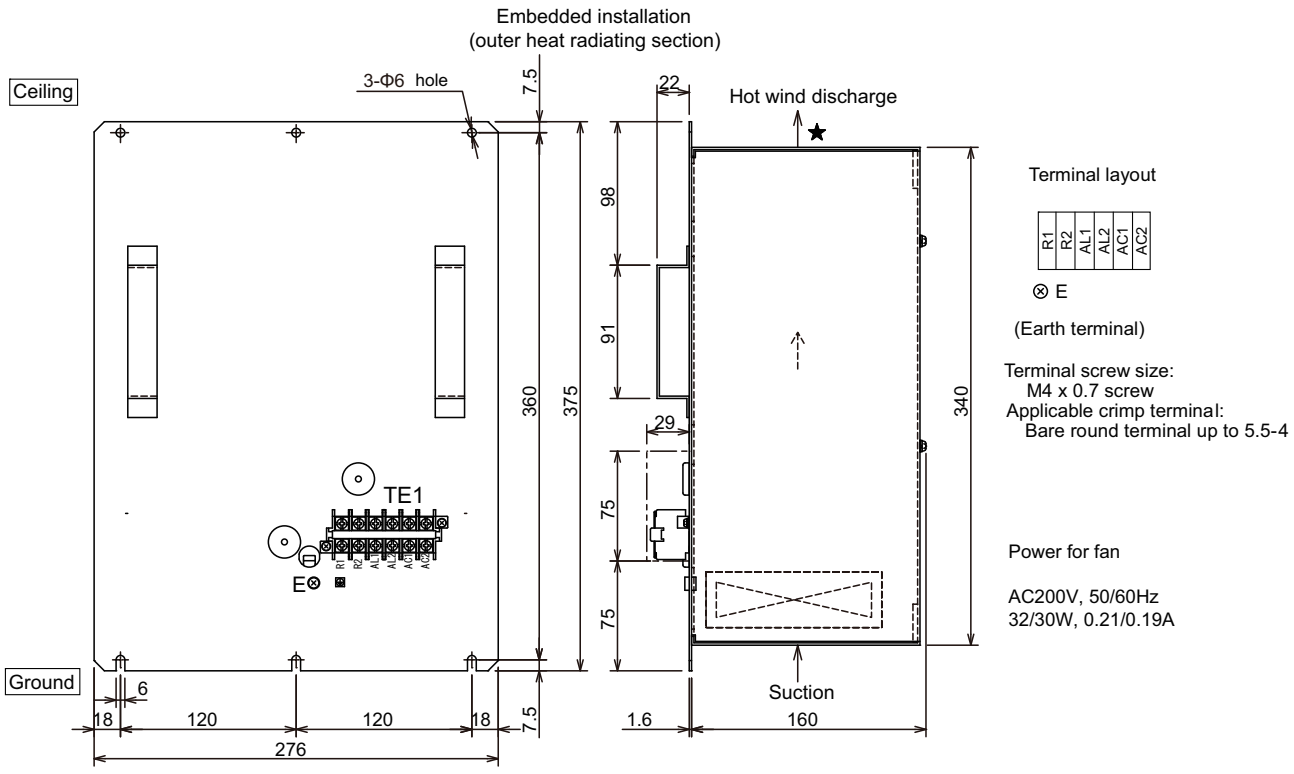
Type	Regenerative capacity (W)	Resistance value (Ω)	Mass (kg)
R-UNIT-3	2100	15	10.8
R-UNIT-4	2100	10	11.0

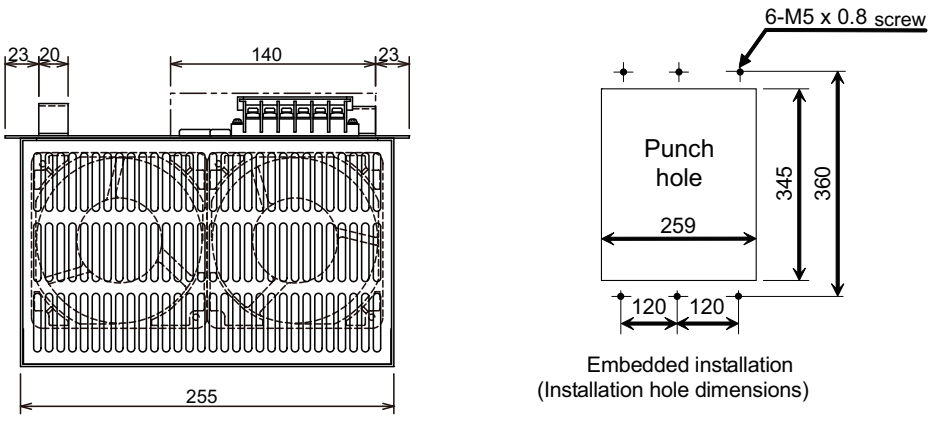
⚠ CAUTION

1. Attach packing to the flange section.
2. Do not wire or arrange other devices in front of the section marked with a ★ as extremely hot wind will be blown out.
3. For the installation direction of this resistor, the "Ceiling" is the top and "Ground" is the bottom.
4. Touching the resistor when it is hot could lead to burns. Always install a protective cover or consider the installation site so that workers will not touch the unit.
5. The resistor's heating value will differ according to the acceleration/deceleration frequency, speed being used and the load GD^2 conditions, etc. However, install the resistor so that the hot wind is always exhausted to outside the panel.

< R-UNIT-5 >

[Unit:mm]





Type	Regenerative capacity (W)	Resistance value (Ω)	Mass (kg)
R-UNIT-5	3100	10	15.0

⚠ CAUTION

1. Attach packing to the flange section.
2. Do not wire or arrange other devices in front of the section marked with a ★ as extremely hot wind will be blown out.
3. For the installation direction of this resistor, the "Ceiling" is the top and "Ground" is the bottom.
4. Touching the resistor when it is hot could lead to burns. Always install a protective cover or consider the installation site so that workers will not touch the unit.
5. The resistor's heating value will differ according to the acceleration/deceleration frequency, speed being used and the load GD^2 conditions, etc. However, install the resistor so that the hot wind is always exhausted to outside the panel.

Encoder for spindle motor

(1) No-variable speed control

(When spindle and motor are directly coupled or coupled with a 1:1 gear ratio)

Spindle control item	Control specifications	Without spindle side encoder	With spindle side encoder
Spindle control	Normal cutting control	●	This normally is not used for no-variable speed control.
	Constant surface speed control (lathe)	●	
	Thread cutting (lathe)	●	
Orientation control	1-point orientation control	●	
	Multi-point orientation control	●	
	Orientation indexing	●	
Synchronous tap control	Standard synchronous tap	●	
	Synchronous tap after zero point return	●	
Spindle synchronous control	Without phase alignment function	●	
	With phase alignment function	●	
C-axis control	C-axis control	● (Note 2)	●

(Note 1) ● :Control possible
x :Control not possible

(Note 2) When spindle and motor are coupled with a 1:1 gear ratio, use of a spindle side encoder is recommended to assure the precision.

(2) Variable speed control

(When using V-belt, or when spindle and motor are connected with a gear ratio other than 1:1)

Spindle control item	Control specifications	Without spindle side encoder	With spindle side encoder		
			TS5690/ERM280/ MPCI Series	OSE-1024	Proximity switch
Spindle control	Normal cutting control	●	●	●	●
	Constant surface speed control (lathe)	● (Note 2)	●	●	●(Note 2)
	Thread cutting (lathe)	x	●	●	x
Orientation control	1-point orientation control	x	●	●	●(Note 4)
	Multi-point orientation control	x	●	●	x
	Orientation indexing	x	●	●	x
Synchronous tap control	Standard synchronous tap	● (Note 3)	●	●	●(Note 3)
	Synchronous tap after zero point return	x	●	●	x
Spindle synchronous control	Without phase alignment function	● (Note 2)	●	●	●(Note 2)
	With phase alignment function	x	●	●	x
C-axis control	C-axis control	x	●	x	x

(Note 1) ● :Control possible
x :Control not possible

(Note 2) Control not possible when connected with the V-belt.

(Note 3) Control not possible when connected with other than the gears.

(Note 4) Orientation is carried out after the spindle is stopped when a proximity switch is used.
As for 2-axis spindle drive unit, setting is available only for one of the axes.

(3) Cautions for connecting the spindle end with an OSE-1024 encoder

[1] Confirm that the gear ratio (pulley ratio) of the spindle end to the encoder is 1:1.

[2] Use a timing belt when connecting by a belt.

Spindle side ABZ pulse output encoder (OSE-1024 Series)

When a spindle and motor are connected with a V-belt, or connected with a gear ratio other than 1:1, use this spindle side encoder to detect the position and speed of the spindle. Also use this encoder when orientation control and synchronous tap control, etc are executed under the above conditions.

(1) Specifications

Encoder type		OSE-1024-3-15-68	OSE-1024-3-15-68-8
Mechanical characteristics for rotation	Inertia	0.1×10^{-4}kgm^2 or less	0.1×10^{-4}kgm^2 or less
	Shaft friction torque	0.98Nm or less	0.98Nm or less
	Shaft angle acceleration	10^4rad/s^2 or less	10^4rad/s^2 or less
	Tolerable continuous rotation speed	6000 r/min	8000 r/min
Mechanical configuration	Bearing maximum non-lubrication time	20000h/6000r/min	20000h/8000r/min
	Shaft run-out (position 15mm from end)	0.02mm or less	0.02mm or less
	Tolerable load (thrust direction/radial direction)	10kg/20kg Half of value during operation	10kg/20kg Half of value during operation
	Mass	1.5kg	1.5kg
	Degree of protection	IP54	
	Squareness of flange to shaft	0.05mm or less	
	Flange matching eccentricity	0.05mm or less	
Working environment	Ambient temperature range	-5°C to +55°C	
	Storage temperature range	-20°C to +85°C	
	Humidity	95%Ph	
	Vibration resistance	5 to 50Hz, total vibration width 1.5mm, each shaft for 30min.	
	Impact resistance	294.20m/s^2 (30G)	

(Note) Confirm that the gear ratio (pulley ratio) of the spindle end to the encoder is 1:1.

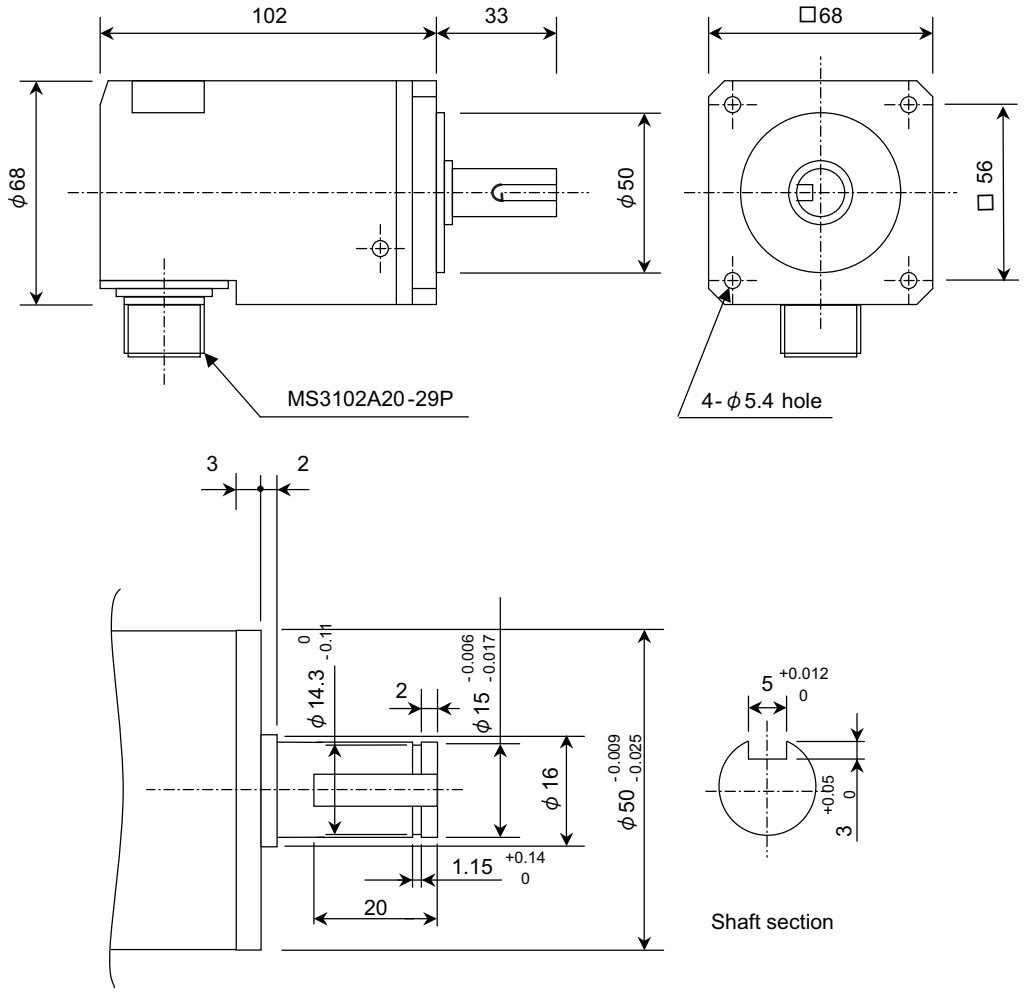
(2) Detection signals

Signal name	Number of detection pulses
A, B phase	1024p/rev
Z phase	1p/rev

Connector pin layout

Pin	Function	Pin	Function
A	A+ signal	K	0V
B	Z+ signal	L	-
C	B+ signal	M	-
D	-	N	A- signal
E	Case earth	P	Z- signal
F	-	R	B- signal
G	-	S	-
H	+5V	T	-
J	-		

(3) Outline dimension drawings



Spindle side encoder (OSE-1024-3-15-68, OSE-1024-3-15-68-8)

Optical communication repeater unit (FCU7-EX022)

When the distance of the optical communication cable between NC control unit and drive unit is over 30m (M700V/M70V/E70 Series: maximum 30m, M700/M70/C70 Series: maximum 20m), the communication can be performed by relaying the optical signal.
Using up to two units, relay of the total length of up to 90m can be performed.

<Product features>

(a) When the distance of the optical communication cable between NC control unit and drive unit is over 30m, the communication can be performed by relaying the optical signal.
(b) The relay between NC control unit and drive unit can be performed for up to two channels.
(c) If the distance between NC control unit and drive unit is even within 30m, the cable can be divided by the relay in transporting the machine.
(d) Same mounting dimension as the remote I/O unit (DX unit).

CAUTION ! This unit can not be used between drive units.

(1) Specifications

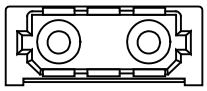
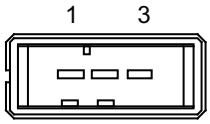
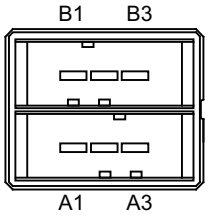
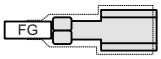
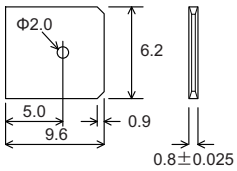
Item			FCU7-EX022
24VDC input	Input voltage		24V±10% (21.6V to 26.4V)
	Inrush current		35A
	Power consumption		10W
	Consumption current		0.4A
Optical interface	Channel number		2 channels
	Connectable number		Maximum 2
Environment	Ambient temperature	Operation	0°C to +55°C
		Storage	-20°C to +60°C
	Ambient humidity	Operation (long term)	+10%RH to +75%RH (with no dew condensation)
		Operation (short term)	+10%RH to +95%RH (with no dew condensation. Short term is within about one month.)
		Storage	+10%RH to +75%RH (with no dew condensation)
	Vibration	Operation	4.9m/s^2
		Transportation	34.3m/s^2
	Impact resistance	Operation	29.4m/s^2
	Atmosphere		No corrosive gas, oil mist, or dust
Dimension	Dimension		(depth)135mm × (width)40mm × (height)168mm
	Mounting method		Screw cramp with M5 2 screw cramps
Mass			0.42kg

(2) Explanation of connectors

Connector name	Application	Remarks
OPT1IN, OPT1OUT, OPT2IN, OPT2OUT	Optical connector	
DCIN	24VDC Power connector	
DCOUT	24VDC/ Power OFF detection output connector	Relays the PD25/27 output to NC control unit.
ACFAIL	Power OFF detection connector	Relays the power OFF detection signal (ACFAIL) when sharing 24V power from PD25/PD27 for NC control unit and optical communication repeater unit. It will not be used when dedicated general-purpose power supply for optical communication repeater unit is prepared.
FG	FG Faston terminal	

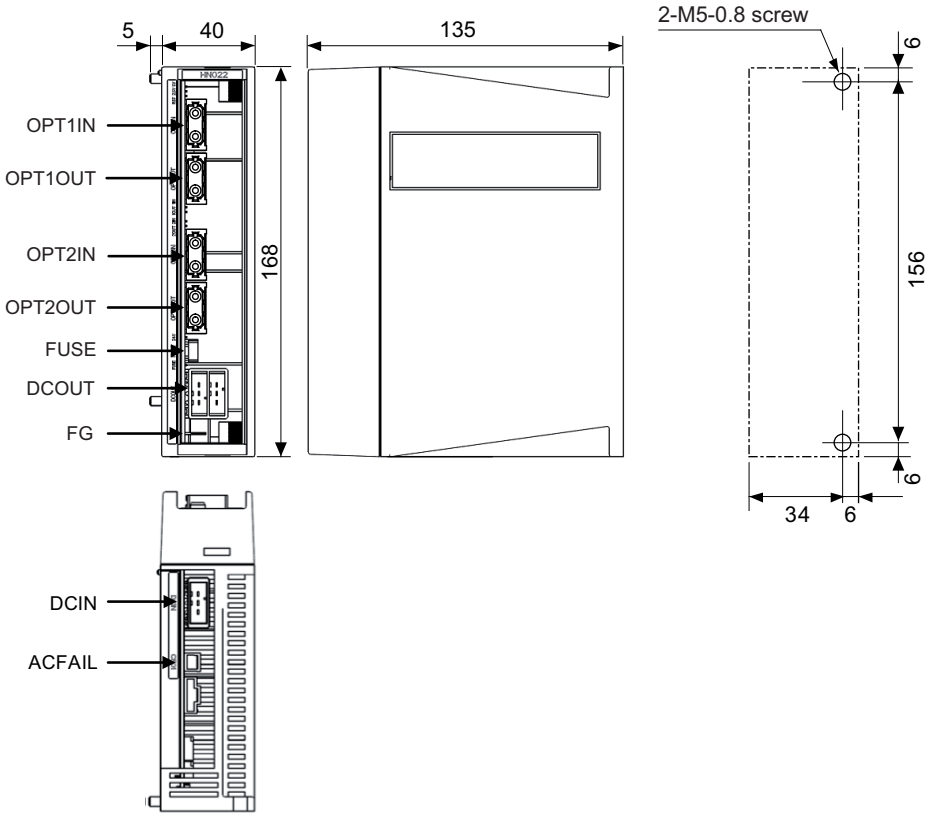
DCIN		DCOUT				ACFAIL	
Pin No.	Name	Pin No.	Name	Pin No.	Name	Pin No.	Name
1	24VDC	A1	ACFAIL	B1	24VDC	1	COM
2	0V (RG)	A2	COM	B2	0V (RG)	2	ACFAIL
3	FG	A3	NC	B3	FG		

< Connector pin layout >

Optical communication I/F (OPT1IN, OPT1OUT, OPT2IN, OPT2OUT)	DC24V input (DCIN)	DC24V output (DCOUT)	Power OFF input ACFAIL (Terminal name:CF01)	FG terminal (FG)
				
<Cable side connector type> (PCF type) Connector: CF-2D101-S Recommended manufacturer: Japan Aviation Electronics (POF type) Connector: PF-2D101 Recommended manufacturer: Japan Aviation Electronics	<PCB side connector type> Connector: 2-178293-5 Recommended manufacturer: Tyco Electronics <Cable side connector type> Connector: 2-178288-3 Contact: 1-175218-5 Recommended manufacturer: Tyco Electronics	<PCB side connector type> Connector: 3-178137-5 Recommended manufacturer: Tyco Electronics <Cable side connector type> Connector: 2-178127-6 Contact: 1-175218-5 Recommended manufacturer: Tyco Electronics	<PCB side connector type> Connector: 53103-0230 Recommended manufacturer: MOLEX <Cable side connector type> Connector: 005057-9402 Contact: 0016020103 Recommended manufacturer: MOLEX	<Cable side faston terminal type name> Type name: 175022-1 (For AWG20-14 250 series) Recommended manufacturer: Tyco Electronics Terminal protection tube: 174817-2 (Yellow)  Unit side tab terminal shape (Note) The faston terminal "175022-1" of the cable side is a simple lock type. Make sure to insert until the simple lock pin is in the Φsecond hole. Firmly press the simple lock release tab when unplugging it.

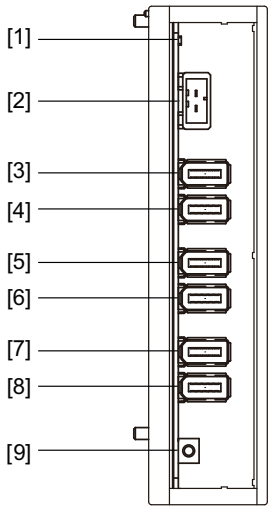
(3) Outline dimension drawings

[Unit: mm]



Scale interface unit (MDS-EX-SR)

(1) Appearance



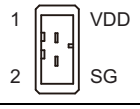
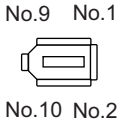
(2) Specifications

Type	MDS-EX-SR
Manufacturer	MITSUBISHI
Output signal	Mitsubishi high-speed serial signal
Degree of protection	IP20
Mass	500g

(3) Environment

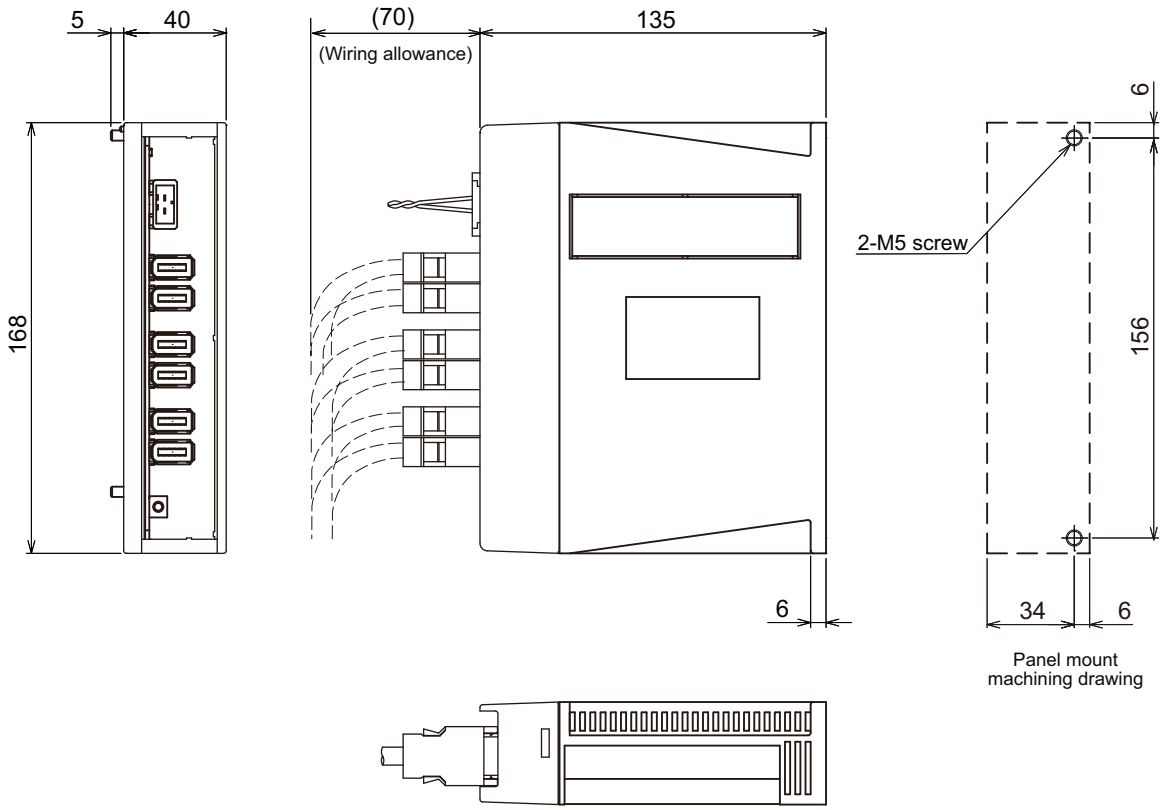
Environment	Conditions
Ambient temperature	0°C to +55°C (with no freezing)
Ambient humidity	90% RH or less (with no dew condensation)
Storage temperature	-15°C to +70°C (with no freezing)
Storage humidity	90% RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration	Operation/storage: 4.9m/s^2 (0.5G) or less Transportation: 49m/s^2(5G) or less

(4) Each part name

	Name	Application	Connector specifications
[1]	24V	24V power supply status indication LED	-
[2]	CN22	Control power (24VDC) input connector	
[3]	LA	MDS-DM-SPVxF (L-axis:CN3L) connection connector	
[4]	LI	Machine side encoder connection connector for servo (L axis)	
[5]	MA	MDS-DM-SPVxF (M-axis:CN3M) connection connector	
[6]	MI	Machine side encoder connection connector for servo (M axis)	
[7]	SA	MDS-DM-SPVxF (S-axis:CN3S) connection connector	
[8]	SI	Machine side encoder connection connector for servo (S axis)	
[9]	FG	Spare FG terminal (This is not used at this point.)	-

(5) Outline dimension drawings

[Unit: mm]



DC connection bar

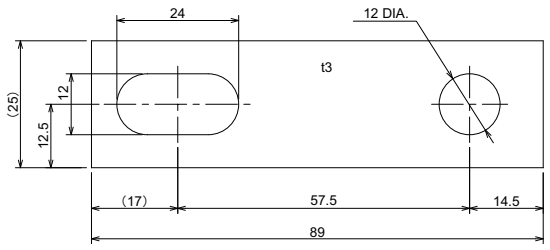
When connecting a large capacity drive unit with L+L- terminal of power supply unit, DC connection bar is required. In use of the following large capacity drive units, use a dedicated DC connection bar. The DC connection bar to be used depends on the connected power supply, so make a selection according to the following table.

Large capacity drive unit	Power supply unit	Required connection bar
MDS-D-SP-400 MDS-D-SP-640	MDS-D-CV-300 MDS-D-CV-370 MDS-D-CV-450	D-BAR-B1006
MDS-D-SP-400 MDS-D-SP-640	MDS-D-CV-550	D-BAR-A1010 (Two-parts set)

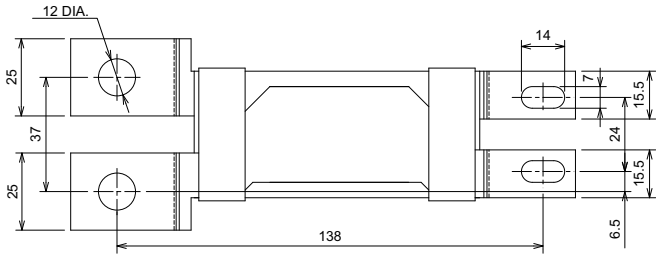
(1) Outline dimension drawings

[Unit:mm]

D-BAR-A1010



D-BAR-B1006



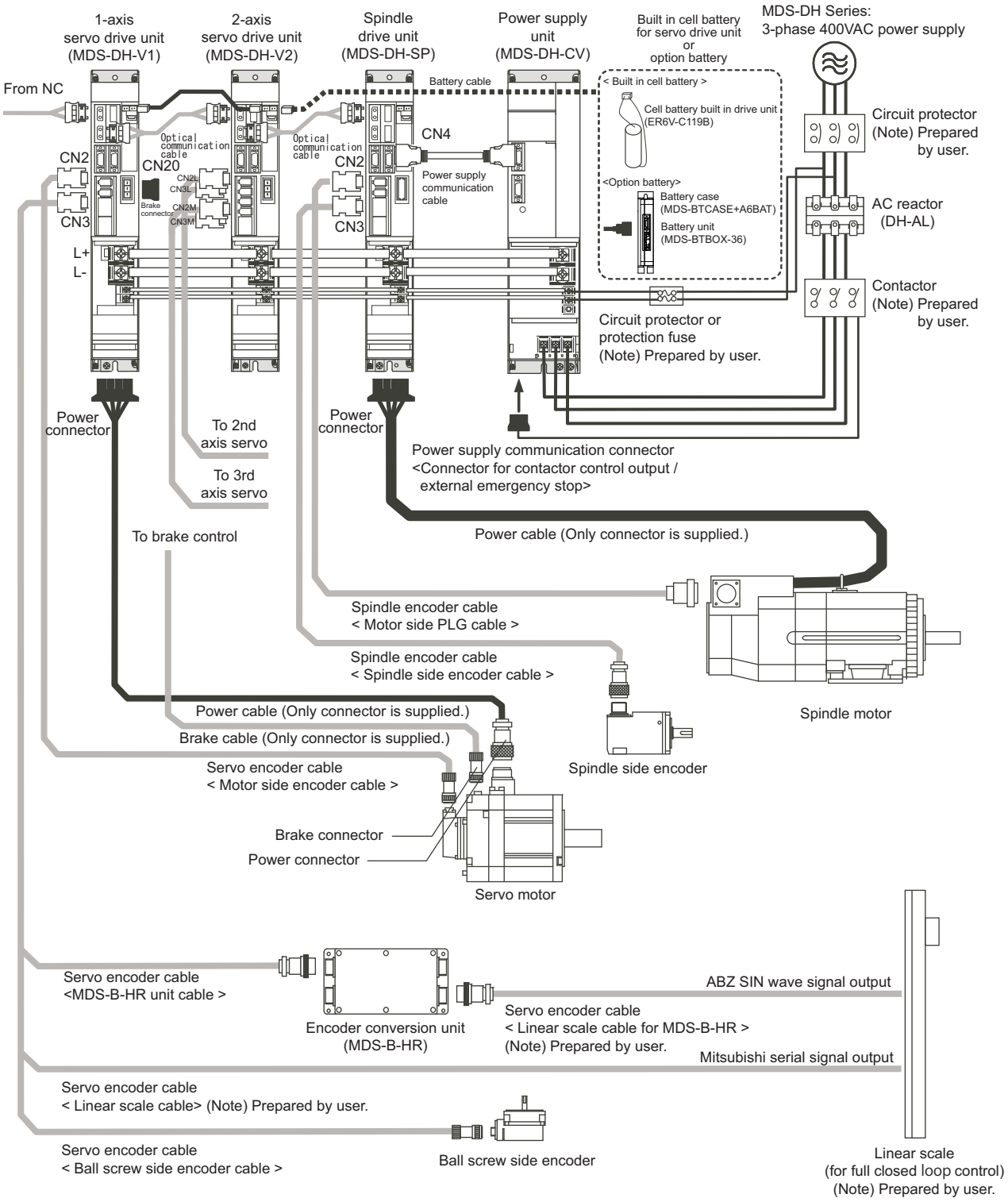
(Note) D-BAR-A1010 is a set of two DC connection bars.

POINT Always install a large capacity drive unit in the left side of power supply unit, and connect with DC connection bar.

400V system Servo/spindle drive system

System configuration

<MDS-DH Series>



Explanation of type

1. Servo motor type

< HF-H Series >

HF-H (1) (2) (3) – (4)

(1) Rated output · Maximum rotation speed

Symbol	Rated output	Maximum rotation speed	Flange size (mm)
75	0.75kW	5000r/min	90 SQ.
105	1.0kW	5000r/min	90 SQ.
54	0.5kW	4000r/min	130 SQ.
104	1.0kW	4000r/min	130 SQ.
154	1.5kW	4000r/min	130 SQ.
204	2.0kW	4000r/min	176 SQ.
354	3.5kW	4000r/min	176 SQ.
453	4.5kW	3500r/min	176 SQ.
703	7.0kW	3000r/min	176 SQ.
903	9.0kW	3000r/min	204 SQ.

(3) Shaft end structure

Symbol	Shaft end structure
S	Straight
T	Taper

(Note) "Taper" is available for the motor w hose flange size is 90 SQ. mm or 130 SQ. mm.

(2) Magnetic brakes

Symbol	Magnetic brakes
None	None
B	With magnetic brakes

(4) Encoder

Symbol	Type	Detection method	Resolution
A48	OSA18-100	Absolute position	260,000 p/rev
A51	OSA105S5A		1,000,000 p/rev
A74N	OSA166S5NA		16,000,000 p/rev

< HP-H Series >

HP-H (1) (2) (3) – (4)

(1) Rated output · Maximum rotation speed

Symbol	Rated output	Maximum rotation speed	Flange size (mm)
54	0.5kW	4000r/min	130 SQ.
104	1.0kW	4000r/min	130 SQ.
154	1.5kW	4000r/min	130 SQ.
224	2.2kW	4000r/min	130 SQ.
204	2.0kW	4000r/min	180 SQ.
354	3.5kW	4000r/min	180 SQ.
454	4.5kW	4000r/min	180 SQ.
704	7.0kW	4000r/min	180 SQ.
903	9.0kW	3000r/min	220 SQ.
1103	11.0kW	3000r/min	220 SQ.

(3) Shaft end structure

Symbol	Shaft end structure
S	Straight
T	Taper

(Note) "Taper" is available for the motor w hose flange size is 130 SQ.mm.

(2) Magnetic brakes

Symbol	Magnetic brakes
None	None
B	With magnetic brakes

(4) Encoder

Symbol	Type	Detection method	Resolution
A48	OSA18-100	Absolute position	260,000 p/rev
A51	OSA105S5A		1,000,000 p/rev
A74N	OSA166S5NA		16,000,000 p/rev

< HC-H Series >

HC-H (1) S-S10- (2)

(1) Rated output · Maximum rotation speed

Symbol	Rated output	Maximum rotation speed	Flange size (mm)
1502	15.0kW	2500r/min	280 SQ.

Compatible w ith DH Series

(2) Encoder

Symbol	Type	Detection method	Resolution
A48	OSA18-100	Absolute position	260,000 p/rev
A51	OSA105S5A		1,000,000 p/rev
A74N	OSA166S5NA		16,000,000 p/rev

2. Linear servo motor type

LM-F Series

< Primary side: Coil >

LM - FP (1) (2) - (3) M - 1WW0

(2) Length

Symbol	Length
H	1010mm

Maximum speed

Symbol	Maximum speed
M	2.0m/s

(1) Width

Symbol	Width
5	240mm

(3) Rated thrust

Symbol	Rated thrust
60	6000N

< Secondary side: Magnet >

LM - FS (1) 0 - (2) - 1WW0

(2) Length

Symbol	Length
480	480mm
576	576mm

(1) Width

Symbol	Width
5	240mm

3. Servo drive unit type

<1-axis servo drive unit>

MDS-DH- (1)

(1) Unit type MDS-DH		Compatible motor type	HF-H□										HP-H□										HC-H□
			75	105	54	104	154	204	354	453	703	903	54	104	154	224	204	354	454	704	903	1103	1502S-S10
	Unit width	Unit nominal maximum current / Stall torque (N·m)	2.0	3.0	2.9	5.9	9.0	13.7	22.5	37.2	49.0	58.8	3.0	5.9	9.0	12.0	13.7	22.5	31.9	49.0	70.0	110.0	146.0
V1-10	60mm	10A	●	●																			
V1-20		20A			●	●							●	●									
V1-40		40A					●	●							●	●	●						
V1-80		80A							●	●								●	●				
V1-80W	90mm	80A									●									●			
V1-160	120mm	160A										●									●		
V1-160W	150mm	160A																				●	
V1-200	240mm (Note)	200A																					●

● Indicates the compatible motor for each servo drive unit.

(Note) DC connection bar is required. Always install a large capacity drive unit in the left side of power supply unit, and connect with DC connection bar.

CAUTION ! The dynamic brake unit (MDS-D-DBU) is required for the MDS-DH-V1-160W and MDS-DH-V1-200.

<2-axis servo drive unit>

MDS-DH- (1)

(1) Unit type MDS-DH			Compatible motor type	HF-H□										HP-H□									
				75	105	54	104	154	204	354	453	703	903	54	104	154	224	204	354	454	704	903	1103
	Unit width	Unit nominal maximum current	Axis / Stall torque (N·m)	2.0	3.0	2.9	5.9	9.0	13.7	22.5	37.2	49.0	58.8	3.0	5.9	9.0	12.0	13.7	22.5	31.9	49.0	70.0	110.0
V2-1010	60mm	10+10A	LM	●	●																		
V2-2010		20+10A	L			●	●							●	●								
			M	●	●																		
V2-2020		20+20A	LM			●	●							●	●								
V2-4020		40+20A	L					●	●							●	●	●					
			M			●	●							●	●								
V2-4040		40+40A	LM					●	●							●	●	●					
V2-8040	90mm	80+40A	L							●	●								●	●			
			M					●	●							●	●	●					
V2-8080		80+80A	LM							●	●								●	●			
V2-8080W	120mm	80+80A	LM							●	●	●							●	●	●		

● Indicates the compatible motor for each servo drive unit.

4. Spindle motor type

< SJ-V Series >

SJ- 4 (1) (2) (3) (4) – (5) (6) T

(1) Motor series

Symbol	Motor series
V	Medium-inertia series

(2) Coil changeover

Symbol	Coil changeover
None	Unavailable

(3) Shaft configuration

Symbol	Axis configuration
None	Standard
S	Hollow shaft

(4) Short time rated output

Symbol	Short time rated output
2.2	2.2kW
3.7	3.7kW
5.5	5.5kW
7.5	7.5kW
11	11kW
15	15kW
18.5	18.5kW
22	22kW
26	26kW
37	37kW
45	45kW
55	55kW

(5) Specification code

The SJ-4-V Series is indicated with a specification code (01 to 99).

(6) Special specification

Symbol	Special specification
None	Standard
Z	High-speed bearing

(Note 1) The built-in spindle motor is available by special order.

(Note 2) This explains the model name system of a spindle motor, and all combinations of motor types listed above do not exist.

5. Spindle drive unit type

< 1-axis spindle drive unit >

MDS-DH- (1)

(1) Capacity

Symbol	Nominal maximum current	Unit width
SP-20	20A	60mm wide
SP-40	40A	
SP-80	80A	90mm wide
SP-100	100A	120mm wide
SP-160	160A	150mm wide
SP-200	200A	240mm wide (Note)
SP-320	320A	
SP-480	480A	300mm wide (Note)

(Note) DC connection bar is required. Always install a large capacity drive unit in the left side of power supply unit, and connect with DC connection bar.

6. Power supply unit type

MDS-DH- (1) (1)

Power supply unit				Compatible AC reactor	Compatible contactor (Mitsubishi) (Note 1)	Compatible circuit protector (Mitsubishi) (Note 1)
(1) Type MDS-DH-	30-minute rated output	Continuous rated output	Unit width			
CV-37	3.7kW	3.7kW	90mm wide	DH-AL-7.5K	S-T12-AC400V	NF63-CW3P-10A
CV-75	7.5kW	7.5kW				NF63-CW3P-20A
CV-110	11.0kW	11.0kW		DH-AL-11K	S-T21-AC400V	NF63-CW3P-30A
CV-185	18.5kW	18.5kW		DH-AL-18.5K	S-T35-AC400V	NF63-CW3P-40A
CV-300	30.0kW	30.0kW	150mm wide (Note 2)	DH-AL-30K	S-T50-AC400V	NF125-CW3P-75A
CV-370	37.0kW	37.0kW		DH-AL-37K	S-T65-AC400V	NF125-CW3P-100A
CV-450	45.0kW	45.0kW		DH-AL-45K		NF125-CW3P-100A
CV-550	55.0kW	55.0kW	300mm wide (Note 2)	DH-AL-55K	S-T80-AC400V	NF250-CW3P-125A
CV-750	75.0kW	75.0kW		DH-AL-75K	S-N150-AC400V	NF250-CW3P-200A

(Note 1) This is an optional part, and must be prepared by the user.
(Note 2) When connecting with a large capacity drive unit, DC connection bar is required.Always install a large capacity drive unit in the left side of power supply unit, and connect with DC connection bar.

7. AC reactor type

DH-AL- (1)

AC reactor		Compatible power supply unit
(1) Type DH-AL-	Capacity	
7.5K	7.5kW	MDS-DH-CV-37
		MDS-DH-CV-75
11K	11.0kW	MDS-DH-CV-110
18.5K	18.5kW	MDS-DH-CV-185
30K	30.0kW	MDS-DH-CV-300
37K	37.0kW	MDS-DH-CV-370
45K	45.0kW	MDS-DH-CV-450
55K	55.0kW	MDS-DH-CV-550
75K	75.0kW	MDS-DH-CV-750

8. Peripheral devices type

MDS-B-HR- (1) (2)

(1) Signal division function class

Symbol	Scale output voltage class
11	Output number 1
12	Output number 2 (with division)

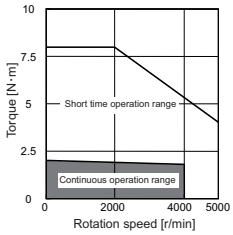
(2) Degree of protection

Symbol	Degree of protection
None	IP65
P	IP67

Servo motor

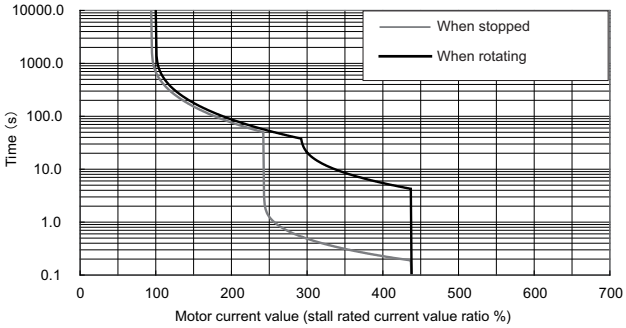
Stall torque	Rated rotation speed	Servo motor type	Explanation of type		
2.0N・m	4000r/min	HF-H75 (1)(2) (3) -xxx	(1) Magnetic brake	B	with brake
				None	without brake
			(2) Shaft end	S	Straight
				T	Taper
			(3) Encoder	XXX	Type

Torque characteristics



Servo overload protection characteristics

DH series

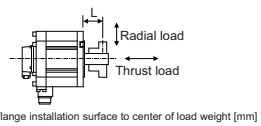


Specifications

Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-DH-V1-10
	2-axis type	MDS-DH-V2-1010 (L,M) MDS-DH-V2-2010 (M)
	Regenerative resistor type	-
Continuous characteristics	Rated output[kW]	0.75
	Rated current[A]	1.5
	Rated torque[N・m]	1.8
	Stall current[A]	1.6
	Stall torque[N・m]	2.0
Maximum momentary output (For power supply selection)[kW]		2.6
Rated rotation speed[r/min]		4000
Maximum rotation speed[r/min]		5000
Maximum current[A]		7.0
Maximum torque[N・m]		8.0
Power rate at continuous rated torque[kW/s]		12.3
Max. deceleration torque of dynamic brake(Tdp)[N・m]		5.11
Motor inertia[$\times 10^{-4}$ kg•m^2]		2.6
(Brake inertia)[$\times 10^{-4}$ kg•m^2]		2.8
Maximum motor shaft conversion load inertia ratio	High-speed, high-accuracy machine[$\times 10^{-4}$ kg•m^2]	7.8
	General machine tool (interpolation axis)[$\times 10^{-4}$ kg•m^2]	13.0
	Non-interpolation axis [$\times 10^{-4}$ kg•m^2]	18.2
Mass	(Without) [kg]	2.5
	(With brake)[kg]	3.9
Heat-resistant class		155(F)
Degree of protection		IP67 (The shaft-through portion is excluded.)
Quakeproof level[m/s^2] ([G])		X:24.5(2.5), Y:24.5(2.5)
Axis tolerable load (Taper shaft)	Radial load (*2)[N] ([mm])	245 (L=33)
	Thrust load[N]	147
Axis tolerable load (Straight shaft)	Radial load (*2)[N] ([mm])	245 (L=33)
	Thrust load[N]	147
Oil level (*3)[mm]		15
Absolute position encoder	16,000,000 p/rev	A74N
	1,000,000 p/rev	A51
	260,000 p/rev	A48

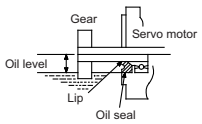
(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)



L : Length from flange installation surface to center of load weight [mm]

(*3)



Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C (with no freezing) Storage: -15°C to +70°C (with no freezing)
Ambient humidity	Operation:80% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Magnetic brake characteristics

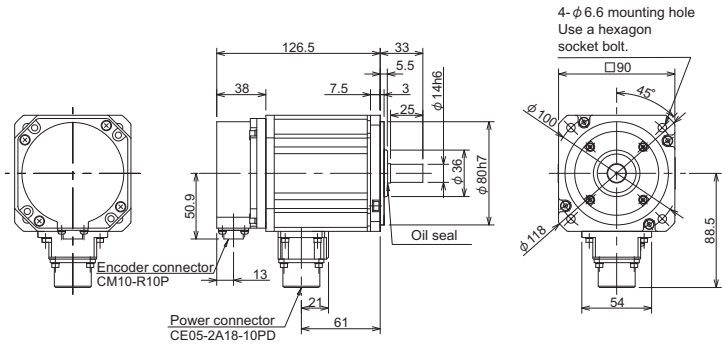
Item	Specifications
Rated voltage	24VDC
Rated current at 20°C[A]	0.38
Static friction torque[N・m]	2.4
Release delay time (*1)[s]	0.03
Braking delay time (DC OFF) (*1)[s]	0.03
Brake life (*2)[times]	20,000

(*1) This is the representative value for the initial attraction gap at 20°C.

(*2) The brake gap will widen through brake lining wear caused by braking. However, the gap cannot be adjusted. Thus, the brake life is considered to be reached when adjustments are required.

Outline dimension drawings [Unit : mm]

HF-H75S-A48



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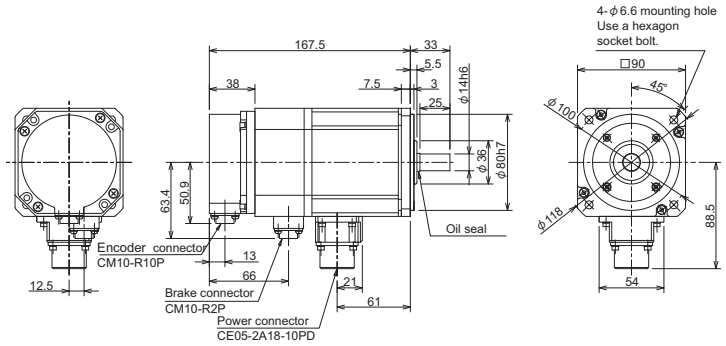

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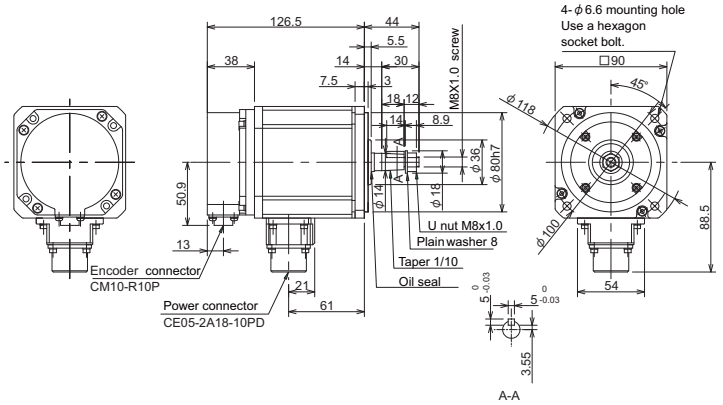

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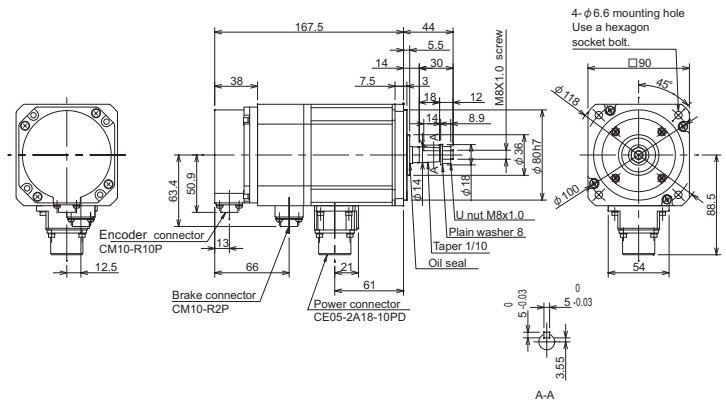
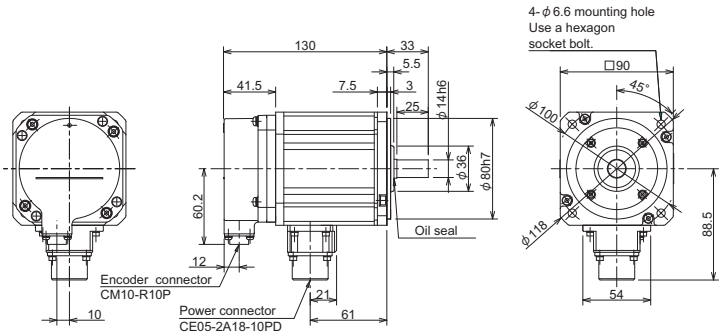


HF-H75S-A51,-A74N



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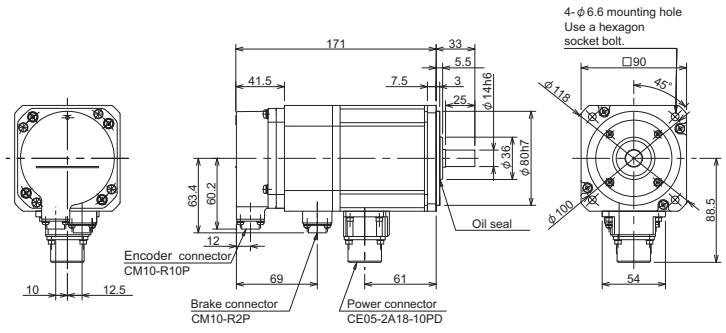

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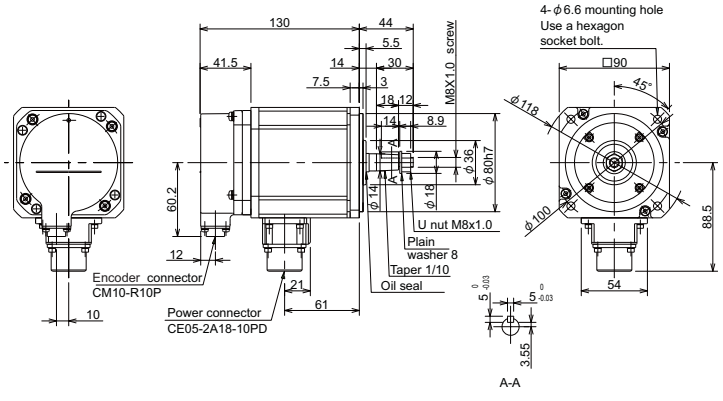

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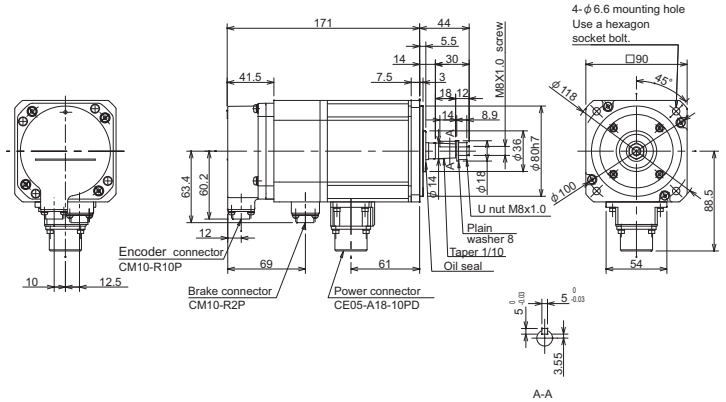
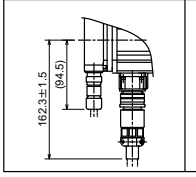
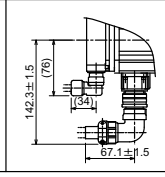
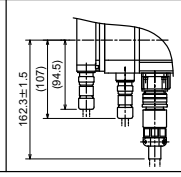
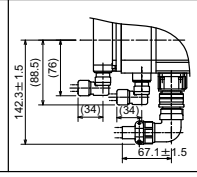
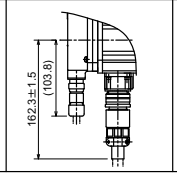
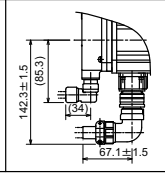
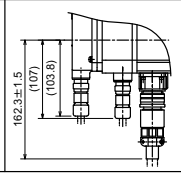
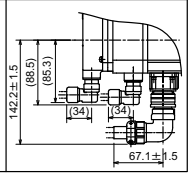
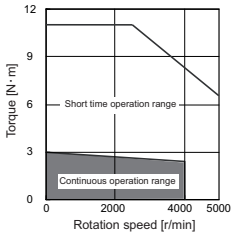


D48				D51/D74			
Without brake		With brake		Without brake		With brake	
Straight plug	Right angle plug	Straight plug	Right angle plug	Straight plug	Right angle plug	Straight plug	Right angle plug
							

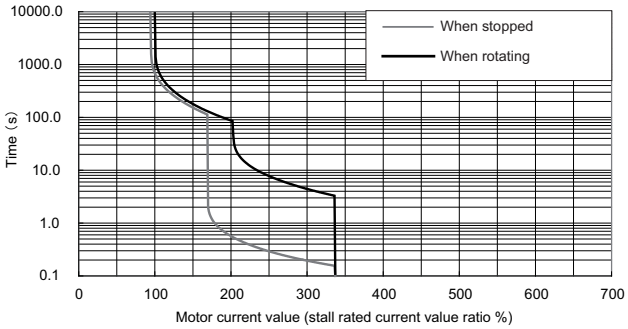
Stall torque	Rated rotation speed	Servo motor type	Explanation of type		
3.0N・m	4000r/min	HF-H105 (1)(2) □□ (3) -xxx	(1) Magnetic brake	B	with brake
				None	without brake
			(2) Shaft end	S	Straight
				T	Taper
			(3) Encoder	XXX	Type

Torque characteristics



Servo overload protection characteristics

DH series

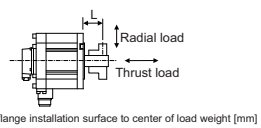


Specifications

Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-DH-V1-10
	2-axis type	MDS-DH-V2-1010 (L,M) MDS-DH-V2-2010 (M) -
	Regenerative resistor type	-
Continuous characteristics	Rated output[kW]	1.0
	Rated current[A]	1.8
	Rated torque[N・m]	2.4
	Stall current[A]	2.3
	Stall torque[N・m]	3.0
Maximum momentary output (For power supply selection)[kW]		3.6
Rated rotation speed[r/min]		4000
Maximum rotation speed[r/min]		5000
Maximum current[A]		7.8
Maximum torque[N・m]		11.0
Power rate at continuous rated torque[kW/s]		11.2
Max. deceleration torque of dynamic brake(Tdp)[N・m]		10.19
Motor inertia[$\times 10^{-4}$ kg•m^2]		5.1
(Brake inertia)[$\times 10^{-4}$ kg•m^2]		5.3
Maximum motor shaft conversion load inertia ratio	High-speed, high-accuracy machine[$\times 10^{-4}$ kg•m^2]	15.3
	General machine tool (interpolation axis)[$\times 10^{-4}$ kg•m^2]	25.5
	Non-interpolation axis [$\times 10^{-4}$ kg•m^2]	35.7
Mass	(Without) [kg]	4.3
	(With brake)[kg]	5.7
Heat-resistant class		155(F)
Degree of protection		IP67 (The shaft-through portion is excluded.)
Quakeproof level[m/s^2] ([G])		X:24.5(2.5), Y:24.5(2.5)
Axis tolerable load (Taper shaft)	Radial load (*2)[N] ([mm])	245 (L=33)
	Thrust load[N]	147
Axis tolerable load (Straight shaft)	Radial load (*2)[N] ([mm])	245 (L=33)
	Thrust load[N]	147
Oil level (*3)[mm]		15
Absolute position encoder	16,000,000 p/rev	A74N
	1,000,000 p/rev	A51
	260,000 p/rev	A48

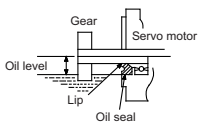
(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)



L : Length from flange installation surface to center of load weight [mm]

(*3)



Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C (with no freezing) Storage: -15°C to +70°C (with no freezing)
Ambient humidity	Operation:80% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Magnetic brake characteristics

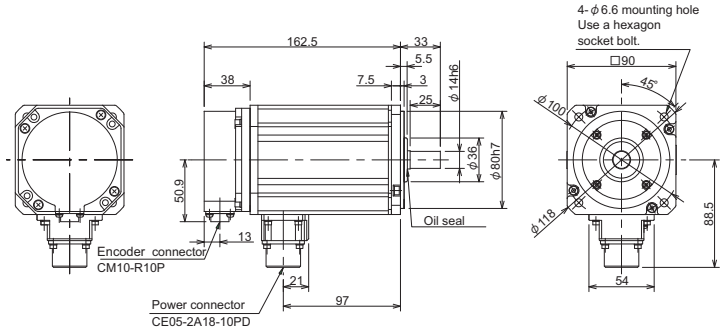
Item	Specifications
Rated voltage	24VDC
Rated current at 20°C[A]	0.38
Static friction torque[N・m]	2.4
Release delay time (*1)[s]	0.03
Braking delay time (DC OFF) (*1)[s]	0.03
Brake life (*2)[times]	20,000

(*1) This is the representative value for the initial attraction gap at 20°C.

(*2) The brake gap will widen through brake lining wear caused by braking. However, the gap cannot be adjusted. Thus, the brake life is considered to be reached when adjustments are required.

Outline dimension drawings [Unit : mm]

HF-H105S-A48



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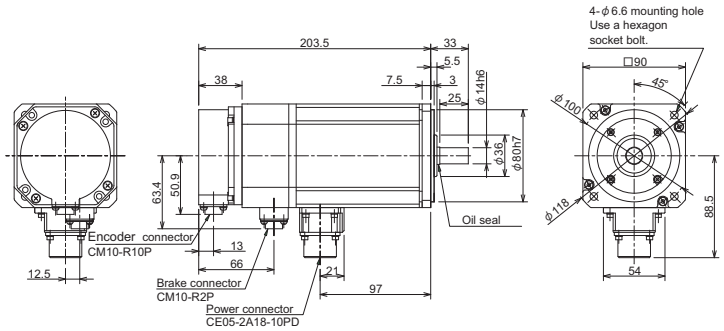
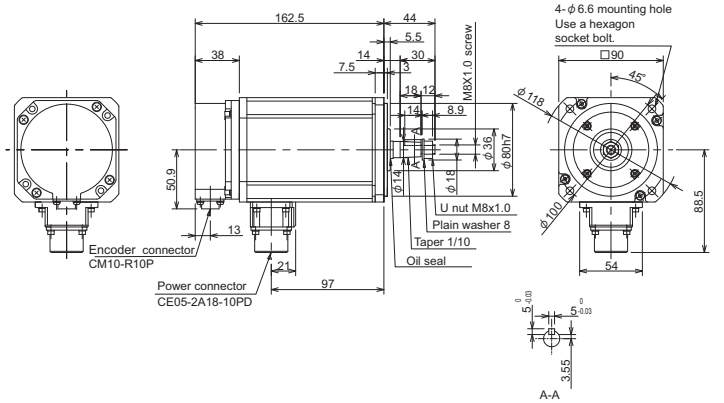


HF-H105T-A48



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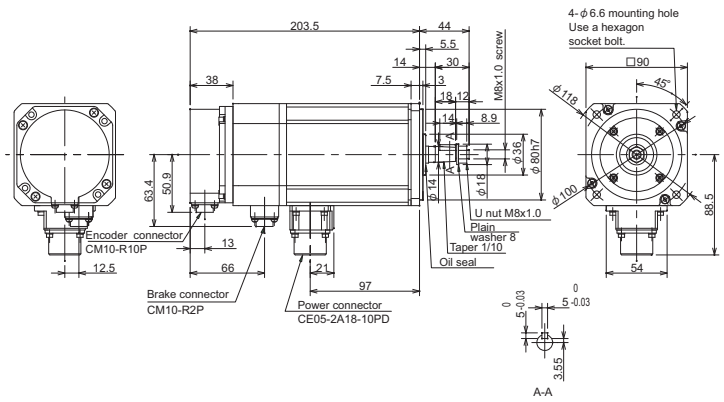
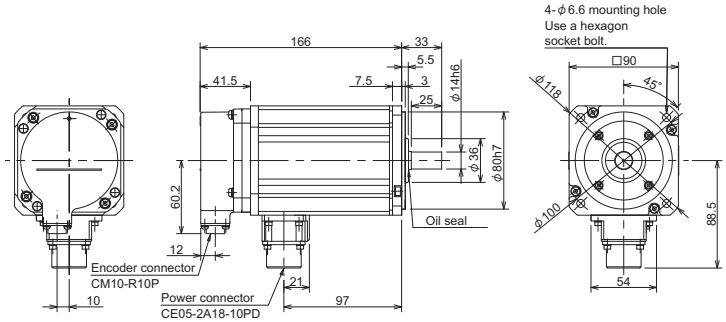


HF-H105S-A51,-A74N



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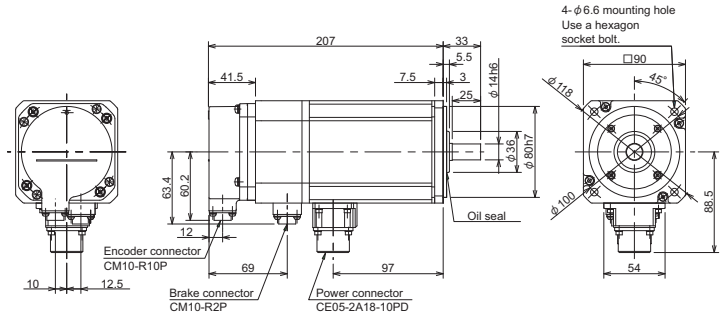

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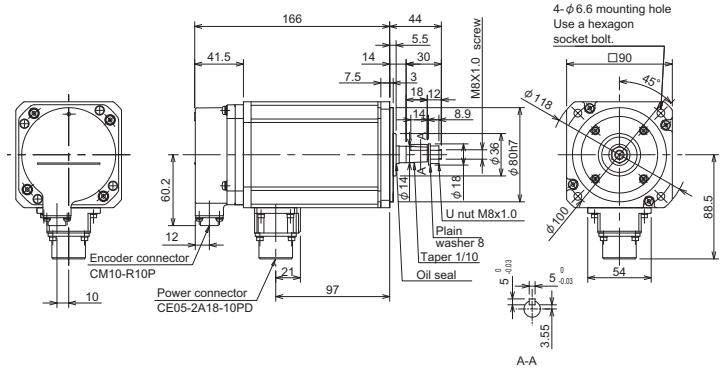
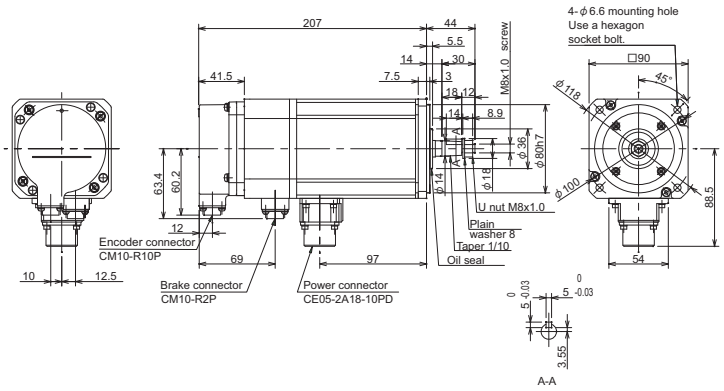
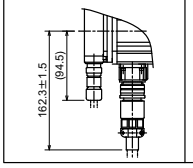
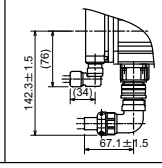
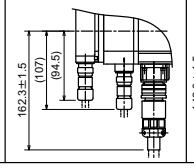
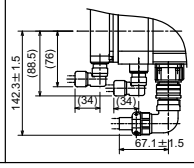
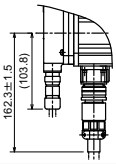
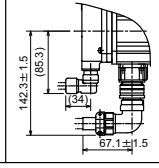
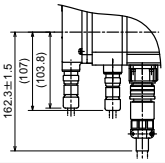
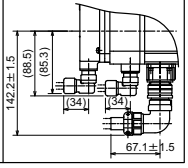


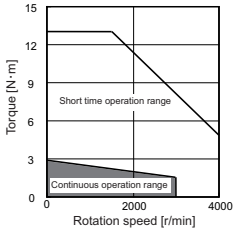
HF-H105BT-A51,-A74N



D48				D51/D74			
Without brake		With brake		Without brake		With brake	
Straight plug	Right angle plug	Straight plug	Right angle plug	Straight plug	Right angle plug	Straight plug	Right angle plug
							

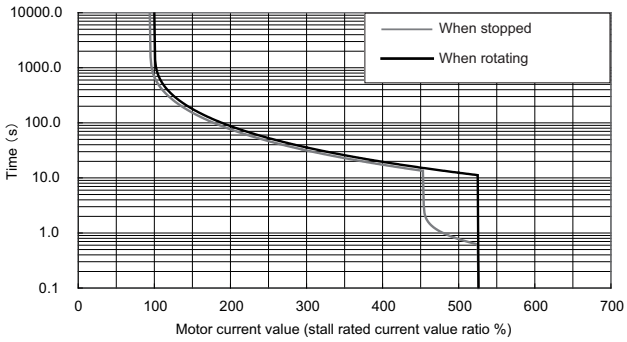
Stall torque	Rated rotation speed	Servo motor type	Explanation of type		
2.9N・m	3000r/min	HF-H54 (1)(2) (3) -xxx	(1) Magnetic brake	B	with brake
				None	without brake
			(2) Shaft end	S	Straight
				T	Taper
			(3) Encoder	XXX	Type

Torque characteristics



Servo overload protection characteristics

DH series

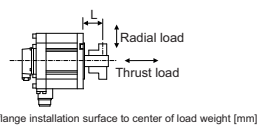


Specifications

Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-DH-V1-20
	2-axis type	MDS-DH-V2-2010 (L) MDS-DH-V2-2020 (L,M) MDS-DH-V2-4020 (M)
	Regenerative resistor type	-
Continuous characteristics	Rated output[kW]	0.5
	Rated current[A]	1.1
	Rated torque[N・m]	1.6
	Stall current[A]	1.6
	Stall torque[N・m]	2.9
Maximum momentary output (For power supply selection)[kW]		2.3
Rated rotation speed[r/min]		3000
Maximum rotation speed[r/min]		4000
Maximum current[A]		8.4
Maximum torque[N・m]		13.0
Power rate at continuous rated torque[kW/s]		4.1
Max. deceleration torque of dynamic brake(Tdp)[N・m]		3.96
Motor inertia[$\times 10^{-4}$ kg•m^2]		6.1
(Brake inertia)[$\times 10^{-4}$ kg•m^2]		8.3
Maximum motor shaft conversion load inertia ratio	High-speed, high-accuracy machine[$\times 10^{-4}$ kg•m^2]	18.3
	General machine tool (interpolation axis)[$\times 10^{-4}$ kg•m^2]	30.5
	Non-interpolation axis [$\times 10^{-4}$ kg•m^2]	42.7
Mass	(Without) [kg]	4.8
	(With brake)[kg]	6.7
Heat-resistant class		155(F)
Degree of protection		IP67 (The shaft-through portion is excluded.)
Quakeproof level[m/s^2] ([G])		X:24.5(2.5),Y:24.5(2.5)
Axis tolerable load (Taper shaft)	Radial load (*2)[N] ([mm])	392 (L=58)
	Thrust load[N]	490
Axis tolerable load (Straight shaft)	Radial load (*2)[N] ([mm])	980 (L=55)
	Thrust load[N]	490
Oil level (*3)[mm]		22.5
Absolute position encoder	16,000,000 p/rev	A74N
	1,000,000 p/rev	A51
	260,000 p/rev	A48

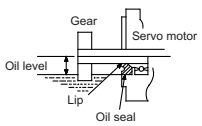
(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)



L : Length from flange installation surface to center of load weight [mm]

(*3)



Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C (with no freezing) Storage: -15°C to +70°C (with no freezing)
Ambient humidity	Operation:80% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Magnetic brake characteristics

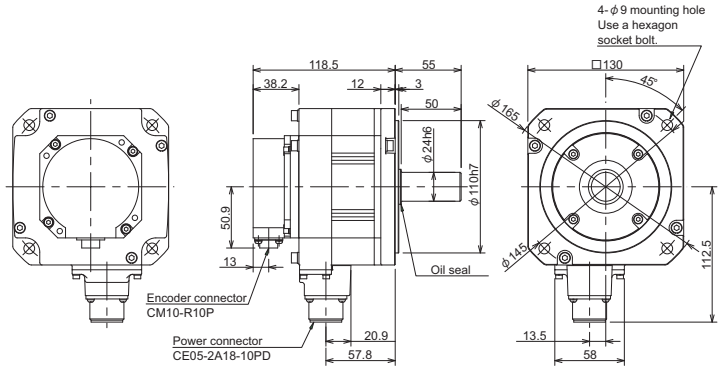
Item	Specifications
Rated voltage	24VDC
Rated current at 20°C[A]	0.8
Static friction torque[N・m]	8.3
Release delay time (*1)[s]	0.04
Braking delay time (DC OFF) (*1)[s]	0.03
Brake life (*2)[times]	20,000

(*1) This is the representative value for the initial attraction gap at 20°C.

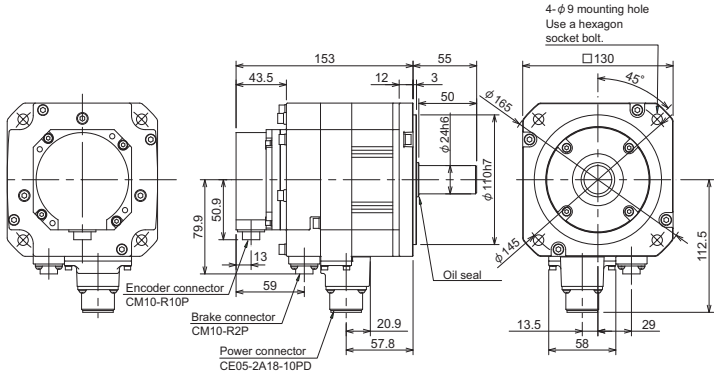
(*2) The brake gap will widen through brake lining wear caused by braking. However, the gap cannot be adjusted. Thus, the brake life is considered to be reached when adjustments are required.

Outline dimension drawings [Unit : mm]

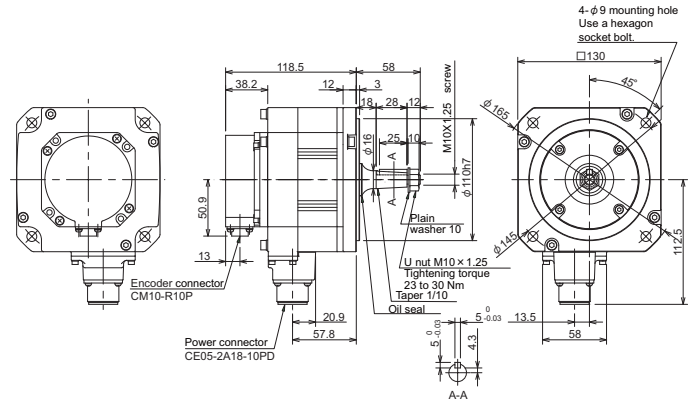
HF-H54S-A48



HF-H54BS-A48



HF-H54T-A48



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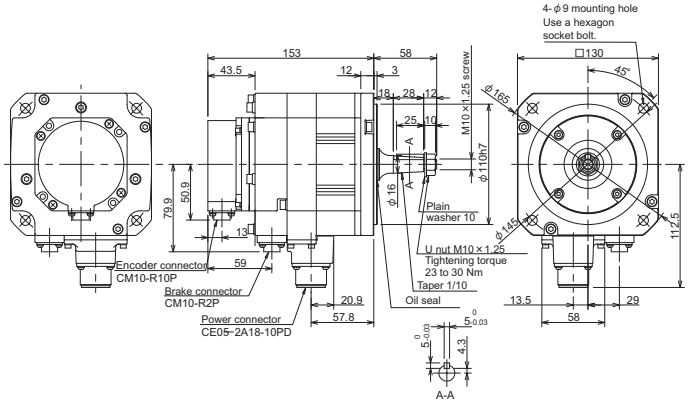
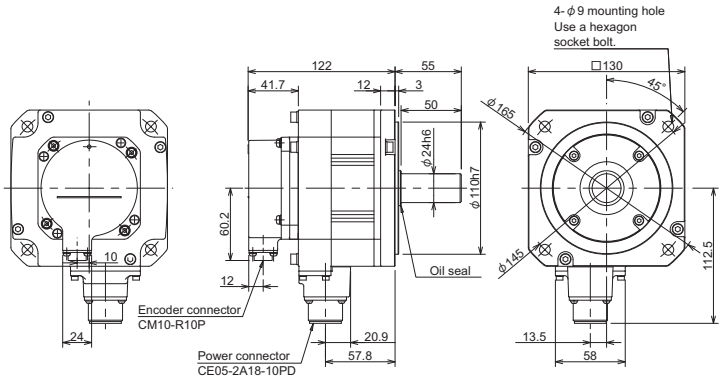


HF-H54S-A51,-A74N



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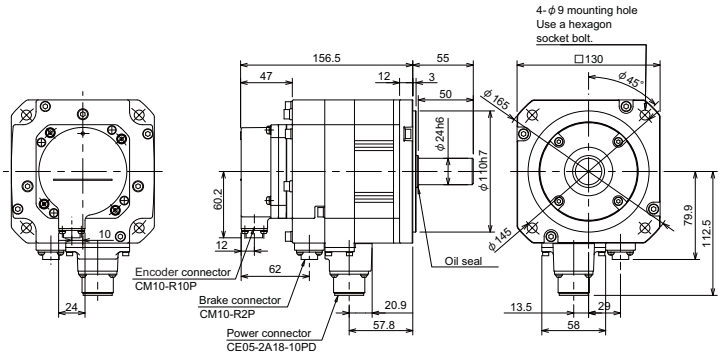

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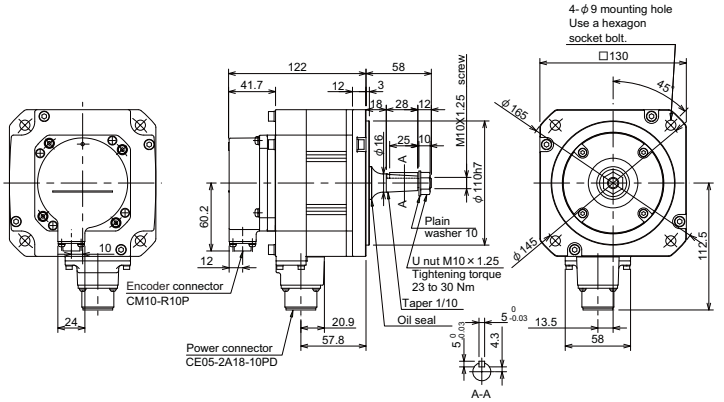
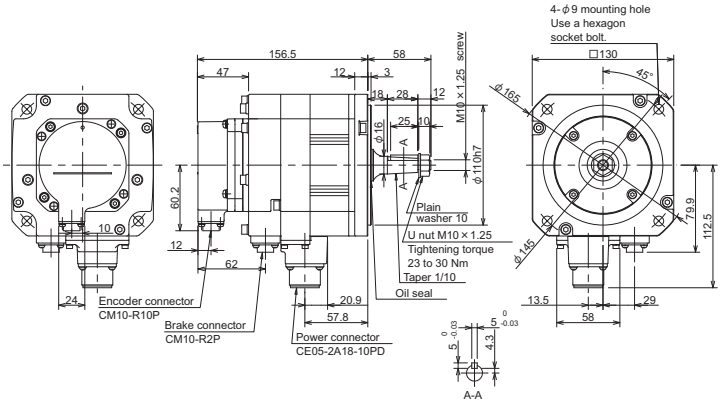
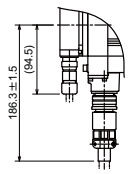
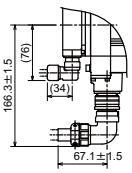
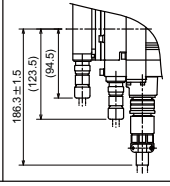
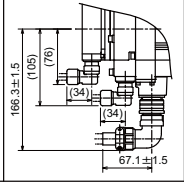
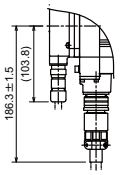
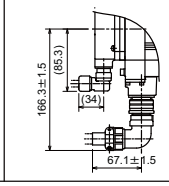
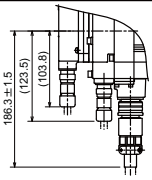
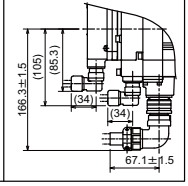


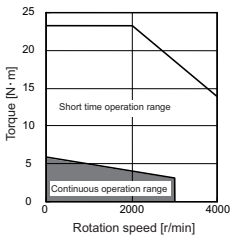
HF-H54BT-A51,-A74N



A48				A51/A74N			
Without brake		With brake		Without brake		With brake	
Straight plug	Right angle plug	Straight plug	Right angle plug	Straight plug	Right angle plug	Straight plug	Right angle plug
							

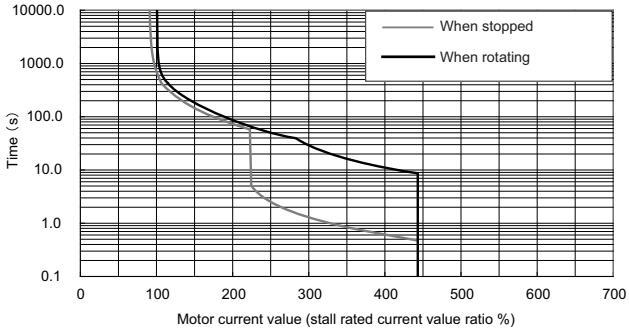
Stall torque	Rated rotation speed	Servo motor type	Explanation of type		
5.9N・m	3000r/min	HF-H104 (1)(2) □□ (3) -xxx	(1) Magnetic brake	B	with brake
				None	without brake
			(2) Shaft end	S	Straight
				T	Taper
			(3) Encoder	XXX	Type

Torque characteristics



Servo overload protection characteristics

DH series

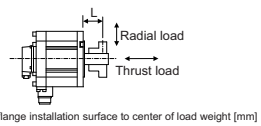


Specifications

Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-DH-V1-20
	2-axis type	MDS-DH-V2-2010 (L) MDS-DH-V2-2020 (L,M) MDS-DH-V2-4020 (M)
	Regenerative resistor type	-
Continuous characteristics	Rated output[kW]	1.0
	Rated current[A]	2.0
	Rated torque[N・m]	3.2
	Stall current[A]	3.3
	Stall torque[N・m]	5.9
Maximum momentary output (For power supply selection)[kW]		5.0
Rated rotation speed[r/min]		3000
Maximum rotation speed[r/min]		4000
Maximum current[A]		15.0
Maximum torque[N・m]		23.3
Power rate at continuous rated torque[kW/s]		8.4
Max. deceleration torque of dynamic brake(Tdp)[N・m]		10.04
Motor inertia[$\times 10^{-4}$ kg•m^2]		11.9
(Brake inertia)[$\times 10^{-4}$ kg•m^2]		14.1
Maximum motor shaft conversion load inertia ratio	High-speed, high-accuracy machine[$\times 10^{-4}$ kg•m^2]	35.7
	General machine tool (interpolation axis)[$\times 10^{-4}$ kg•m^2]	59.5
	Non-interpolation axis [$\times 10^{-4}$ kg•m^2]	83.3
Mass	(Without) [kg]	6.7
	(With brake)[kg]	8.6
Heat-resistant class		155(F)
Degree of protection		IP67 (The shaft-through portion is excluded.)
Quakeproof level[m/s^2] ([G])		X:24.5(2.5),Y:24.5(2.5)
Axis tolerable load (Taper shaft)	Radial load (*2)[N] ([mm])	392 (L=58)
	Thrust load[N]	490
Axis tolerable load (Straight shaft)	Radial load (*2)[N] ([mm])	980 (L=55)
	Thrust load[N]	490
Oil level (*3)[mm]		22.5
Absolute position encoder	16,000,000 p/rev	A74N
	1,000,000 p/rev	A51
	260,000 p/rev	A48

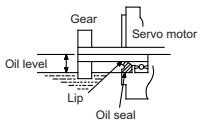
(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)



L : Length from flange installation surface to center of load weight [mm]

(*3)



Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C (with no freezing) Storage: -15°C to +70°C (with no freezing)
Ambient humidity	Operation:80% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Magnetic brake characteristics

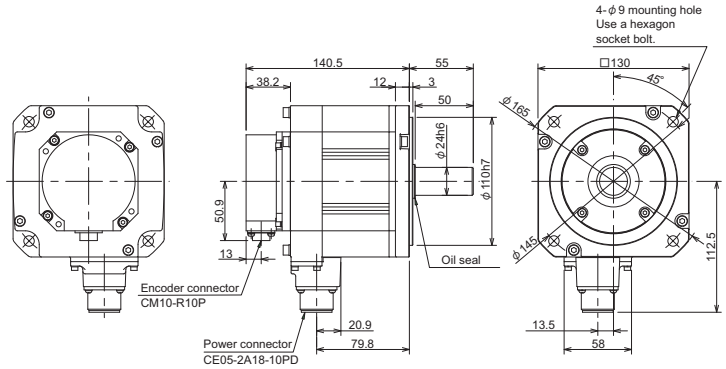
Item	Specifications
Rated voltage	24VDC
Rated current at 20°C[A]	0.8
Static friction torque[N・m]	8.3
Release delay time (*1)[s]	0.04
Braking delay time (DC OFF) (*1)[s]	0.03
Brake life (*2)[times]	20,000

(*1) This is the representative value for the initial attraction gap at 20°C.

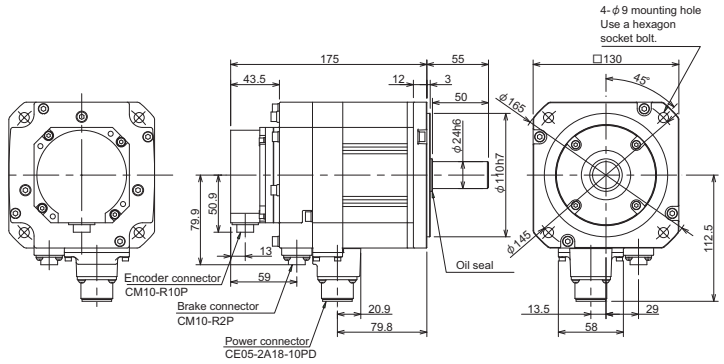
(*2) The brake gap will widen through brake lining wear caused by braking. However, the gap cannot be adjusted. Thus, the brake life is considered to be reached when adjustments are required.

Outline dimension drawings [Unit : mm]

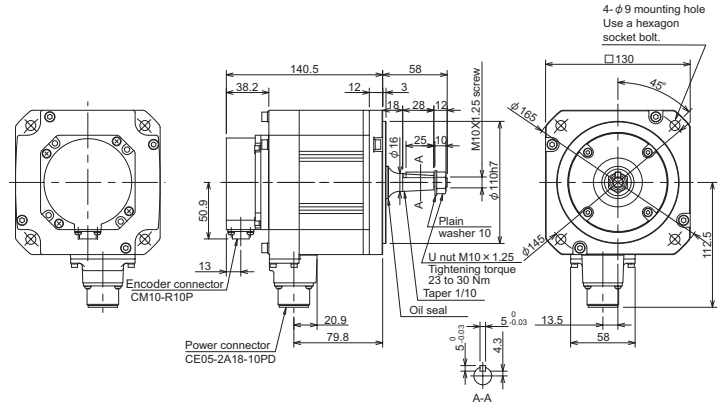
HF-H104S-A48



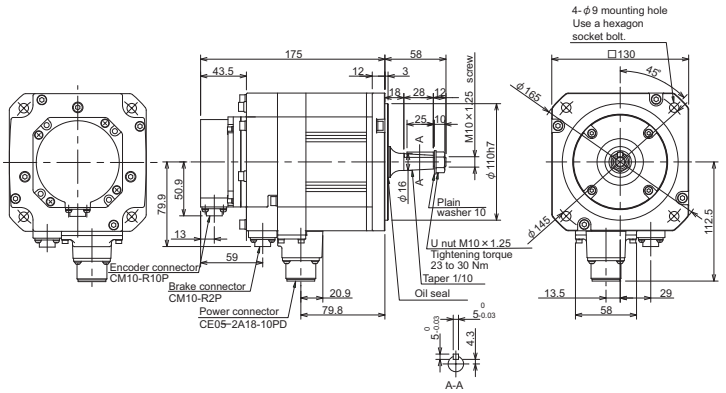
HF-H104BS-A48



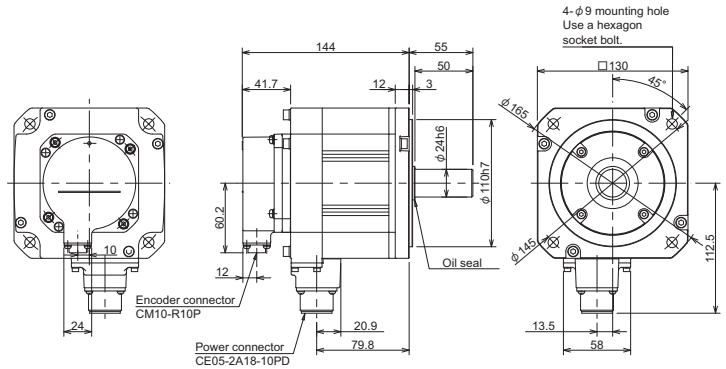
HF-H104T-A48



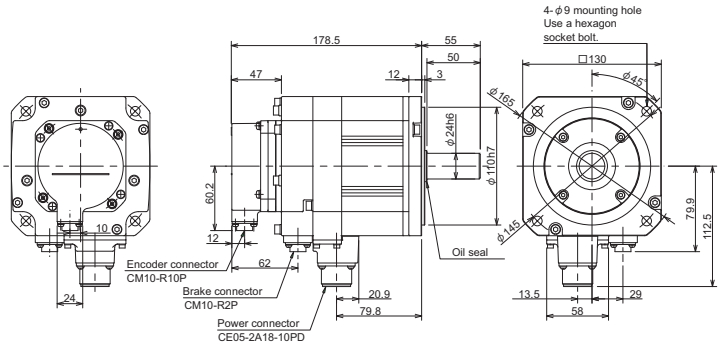
HF-H104BT-A48



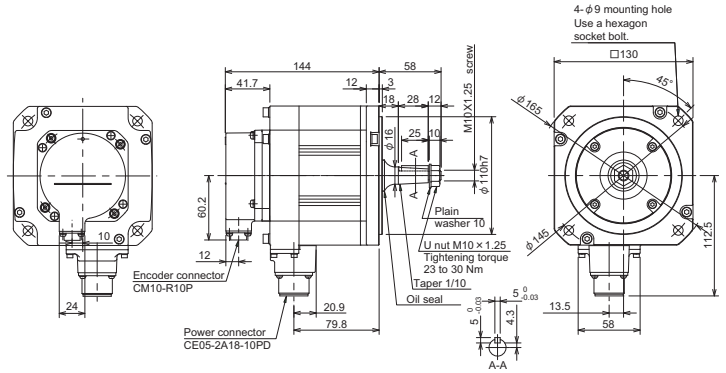
HF-H104S-A51,-A74N



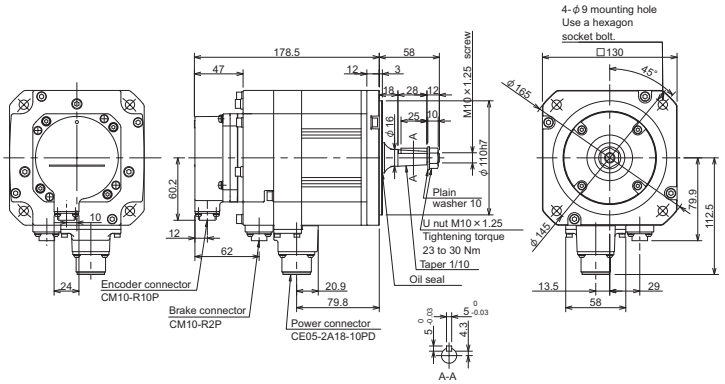
HF-H104BS-A51,-A74N

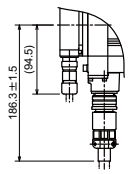
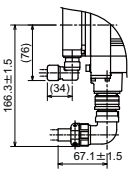
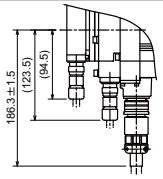
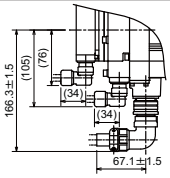
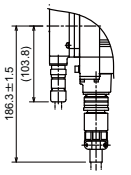
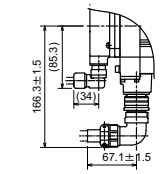
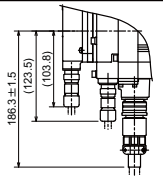
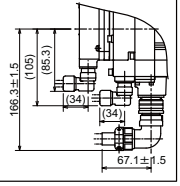


HF-H104T-A51,-A74N



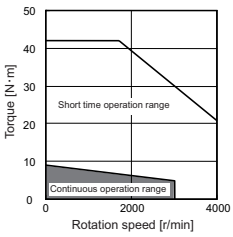
HF-H104BT-A51,-A74N



A48				A51/A74N			
Without brake		With brake		Without brake		With brake	
Straight plug	Right angle plug	Straight plug	Right angle plug	Straight plug	Right angle plug	Straight plug	Right angle plug
							

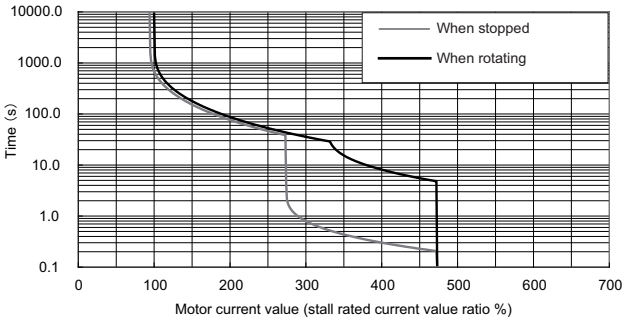
Stall torque	Rated rotation speed	Servo motor type	Explanation of type		
9.0N・m	3000r/min	HF-H154 (1)(2) □□ (3) -xxx	(1) Magnetic brake	B	with brake
				None	without brake
			(2) Shaft end	S	Straight
				T	Taper
			(3) Encoder	XXX	Type

Torque characteristics



Servo overload protection characteristics

DH series

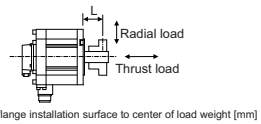


Specifications

Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-DH-V1-40
	2-axis type	MDS-DH-V2-4020 (L) MDS-DH-V2-4040 (L,M) MDS-DH-V2-8040 (M)
	Regenerative resistor type	-
Continuous characteristics	Rated output[kW]	1.5
	Rated current[A]	2.7
	Rated torque[N・m]	4.8
	Stall current[A]	5.5
	Stall torque[N・m]	9.0
Maximum momentary output (For power supply selection)[kW]		9.0
Rated rotation speed[r/min]		3000
Maximum rotation speed[r/min]		4000
Maximum current[A]		26.0
Maximum torque[N・m]		42.0
Power rate at continuous rated torque[kW/s]		12.7
Max. deceleration torque of dynamic brake(Tdp)[N・m]		15.04
Motor inertia[$\times 10^{-4}$ kg•m^2]		17.8
(Brake inertia)[$\times 10^{-4}$ kg•m^2]		20.0
Maximum motor shaft conversion load inertia ratio	High-speed, high-accuracy machine[$\times 10^{-4}$ kg•m^2]	53.4
	General machine tool (interpolation axis)[$\times 10^{-4}$ kg•m^2]	89.0
	Non-interpolation axis [$\times 10^{-4}$ kg•m^2]	124.6
Mass	(Without) [kg]	8.3
	(With brake)[kg]	11
Heat-resistant class		155(F)
Degree of protection		IP67 (The shaft-through portion is excluded.)
Quakeproof level[m/s^2] ([G])		X:24.5(2.5), Y:24.5(2.5)
Axis tolerable load (Taper shaft)	Radial load (*2)[N] ([mm])	392 (L=58)
	Thrust load[N]	490
Axis tolerable load (Straight shaft)	Radial load (*2)[N] ([mm])	980 (L=55)
	Thrust load[N]	490
Oil level (*3)[mm]		22.5
Absolute position encoder	16,000,000 p/rev	A74N
	1,000,000 p/rev	A51
	260,000 p/rev	A48

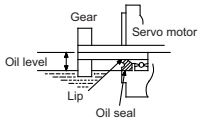
(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)



L : Length from flange installation surface to center of load weight [mm]

(*3)



Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C (with no freezing) Storage: -15°C to +70°C (with no freezing)
Ambient humidity	Operation:80% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Magnetic brake characteristics

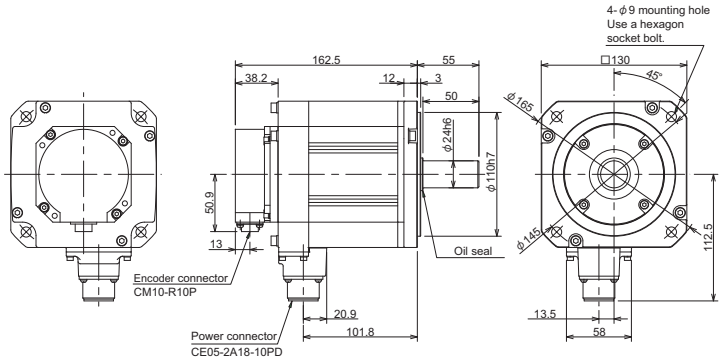
Item	Specifications
Rated voltage	24VDC
Rated current at 20°C[A]	0.8
Static friction torque[N・m]	8.3
Release delay time (*1)[s]	0.04
Braking delay time (DC OFF) (*1)[s]	0.03
Brake life (*2)[times]	20,000

(*1) This is the representative value for the initial attraction gap at 20°C.

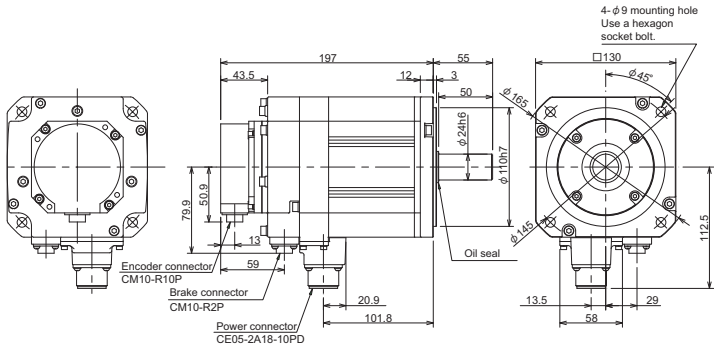
(*2) The brake gap will widen through brake lining wear caused by braking. However, the gap cannot be adjusted. Thus, the brake life is considered to be reached when adjustments are required.

Outline dimension drawings [Unit : mm]

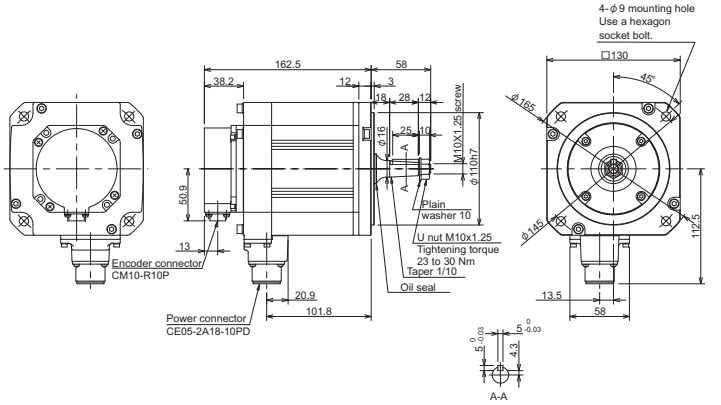
HF-H154S-A48



HF-H154BS-A48



HF-H154T-A48



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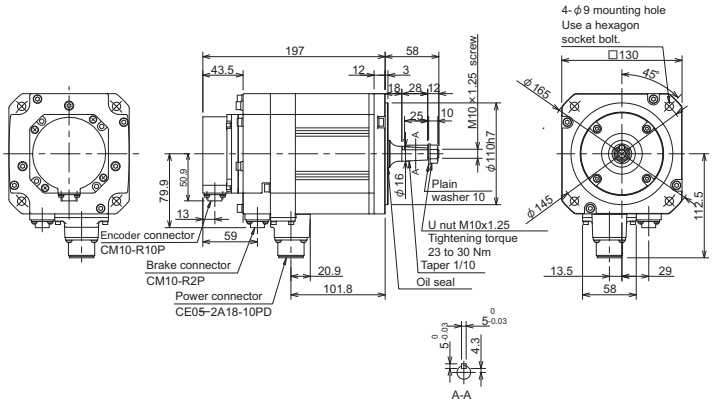
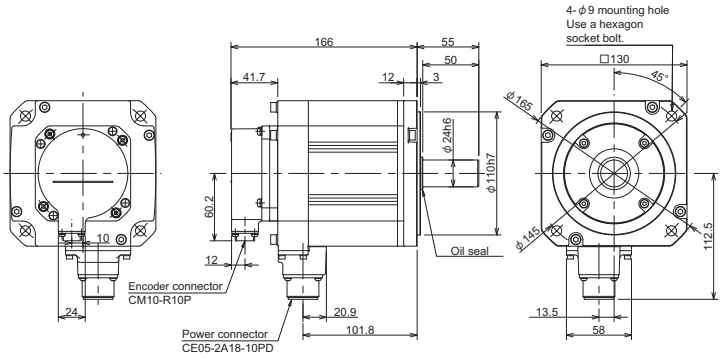


HF-H154S-A51,-A74N



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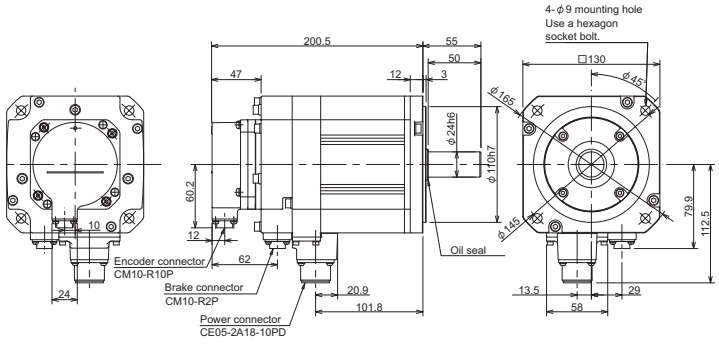

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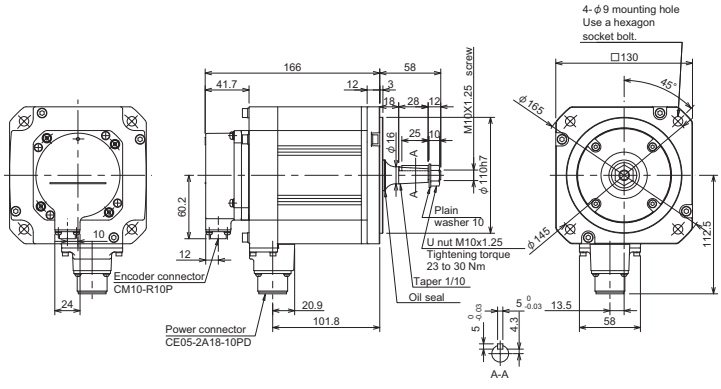

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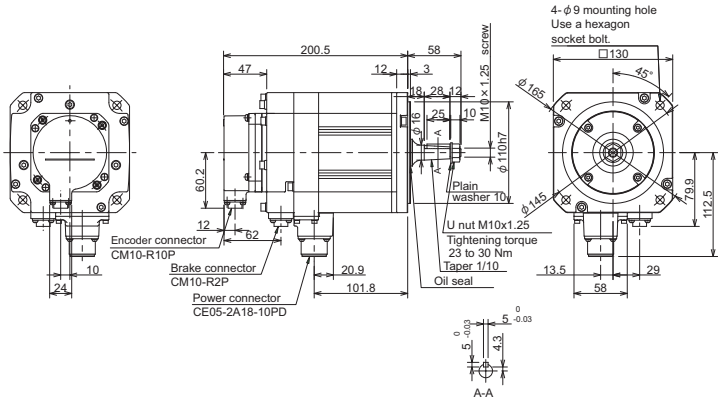
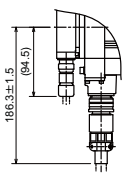
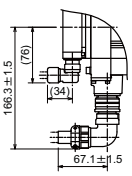
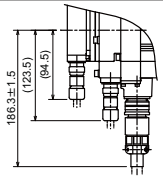
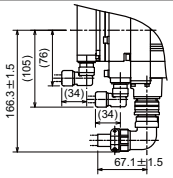
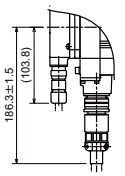
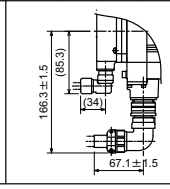
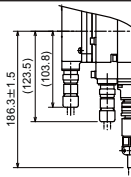
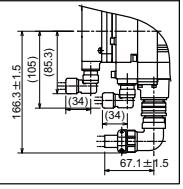
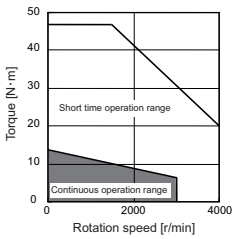


A48				A51/A74N			
Without brake		With brake		Without brake		With brake	
Straight plug	Right angle plug	Straight plug	Right angle plug	Straight plug	Right angle plug	Straight plug	Right angle plug
							

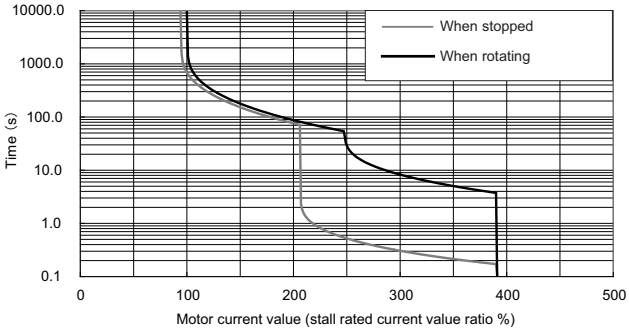
Stall torque	Rated rotation speed	Servo motor type	Explanation of type		
13.7N・m	3000r/min	HF-H204 □ S-xxx (1) (2)	(1) Magnetic brake	B	with brake
				None	without brake
			(2) Encoder	XXX	Type

Torque characteristics



Servo overload protection characteristics

DH series

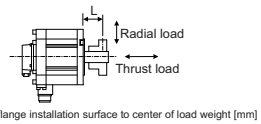


Specifications

Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-DH-V1-40
	2-axis type	MDS-DH-V2-4020 (L) MDS-DH-V2-4040 (L,M) MDS-DH-V2-8040 (M)
	Regenerative resistor type	-
Continuous characteristics	Rated output[kW]	2.0
	Rated current[A]	3.5
	Rated torque[N・m]	6.4
	Stall current[A]	7.3
	Stall torque[N・m]	13.7
Maximum momentary output (For power supply selection)[kW]		8.0
Rated rotation speed[r/min]		3000
Maximum rotation speed[r/min]		4000
Maximum current[A]		29.0
Maximum torque[N・m]		47.0
Power rate at continuous rated torque[kW/s]		10.6
Max. deceleration torque of dynamic brake(Tdp)[N・m]		15.83
Motor inertia[$\times 10^{-4}$ kg•m^2]		38.3
(Brake inertia)[$\times 10^{-4}$ kg•m^2]		48.0
Maximum motor shaft conversion load inertia ratio	High-speed, high-accuracy machine[$\times 10^{-4}$ kg•m^2]	114.9
	General machine tool (interpolation axis)[$\times 10^{-4}$ kg•m^2]	191.5
	Non-interpolation axis [$\times 10^{-4}$ kg•m^2]	268.1
Mass	(Without) [kg]	13
	(With brake)[kg]	19
Heat-resistant class		155(F)
Degree of protection		IP67 (The shaft-through portion is excluded.)
Quakeproof level[m/s^2] ([G])		X:24.5(2.5), Y:29.4(3)
Axis tolerable load (Taper shaft)	Radial load (*2)[N] ([mm])	-
	Thrust load[N]	-
Axis tolerable load (Straight shaft)	Radial load (*2)[N] ([mm])	2058 (L=79)
	Thrust load[N]	980
Oil level (*3)[mm]		30
Absolute position encoder	16,000,000 p/rev	A74N
	1,000,000 p/rev	A51
	260,000 p/rev	A48

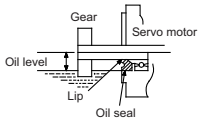
(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)



L : Length from flange installation surface to center of load weight [mm]

(*3)



Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C (with no freezing) Storage: -15°C to +70°C (with no freezing)
Ambient humidity	Operation:80% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Magnetic brake characteristics

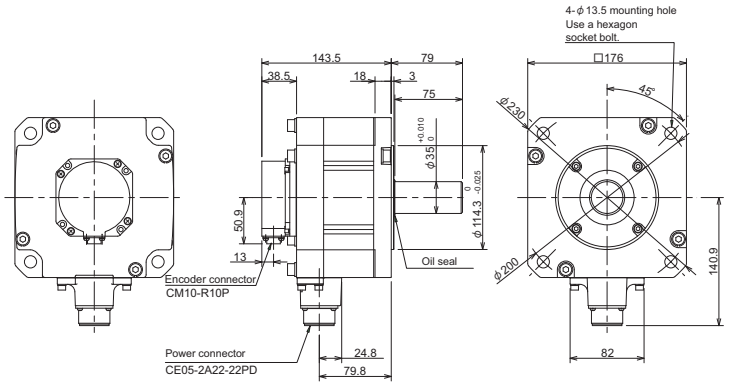
Item	Specifications
Rated voltage	24VDC
Rated current at 20°C[A]	1.4
Static friction torque[N・m]	43.1
Release delay time (*1)[s]	0.1
Braking delay time (DC OFF) (*1)[s]	0.03
Brake life (*2)[times]	20,000

(*1) This is the representative value for the initial attraction gap at 20°C.

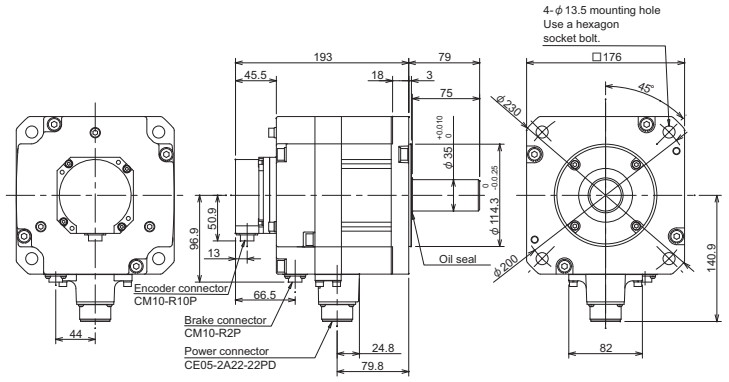
(*2) The brake gap will widen through brake lining wear caused by braking. However, the gap cannot be adjusted. Thus, the brake life is considered to be reached when adjustments are required.

Outline dimension drawings [Unit : mm]

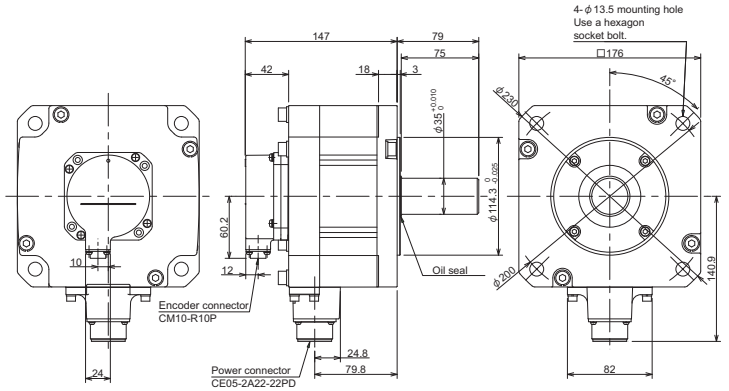
HF-H204S-A48



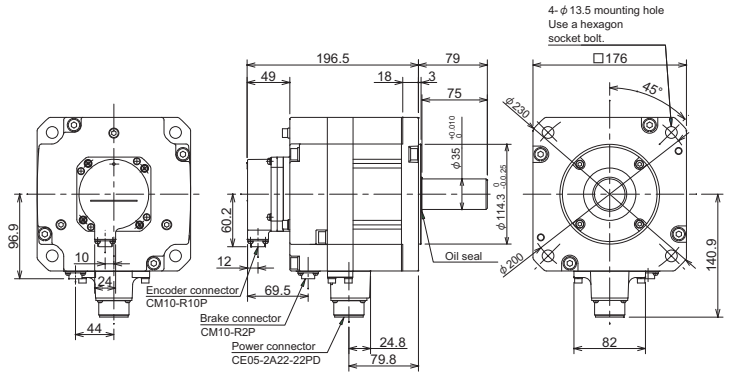
HF-H204BS-A48

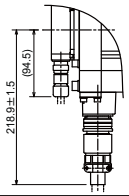
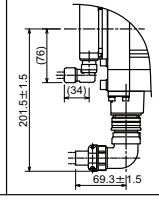
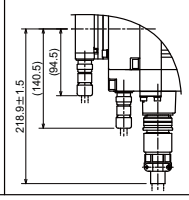
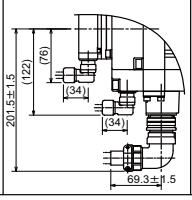
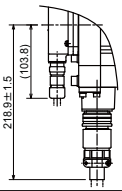
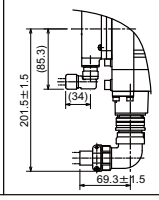
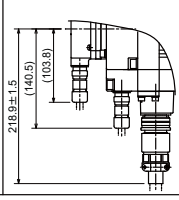
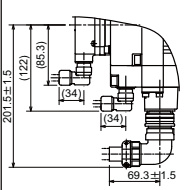


HF-H204S-A51,-A74N



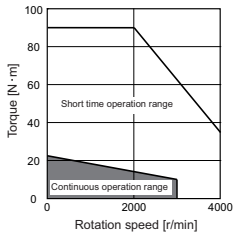
HF-H204BS-A51,-A74N



A48				A51/A74N			
Without brake		With brake		Without brake		With brake	
Straight plug	Right angle plug	Straight plug	Right angle plug	Straight plug	Right angle plug	Straight plug	Right angle plug
							

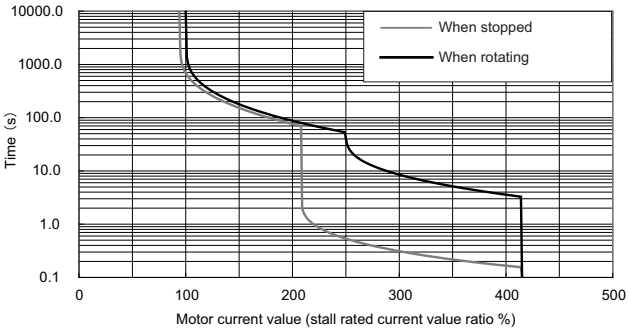
Stall torque	Rated rotation speed	Servo motor type	Explanation of type		
22.5N・m	3000r/min	HF-H354 □ S-xxx (1) (2)	(1) Magnetic brake	B	with brake
				None	without brake
			(2) Encoder	XXX	Type

Torque characteristics



Servo overload protection characteristics

DH series

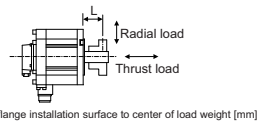


Specifications

Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-DH-V1-80
	2-axis type	MDS-DH-V2-8040 (L) MDS-DH-V2-8080 (L,M) MDS-DH-V2-8080W (L,M)
	Regenerative resistor type	-
Continuous characteristics	Rated output[kW]	3.5
	Rated current[A]	7.8
	Rated torque[N・m]	11.1
	Stall current[A]	14
	Stall torque[N・m]	22.5
Maximum momentary output (For power supply selection)[kW]		18.0
Rated rotation speed[r/min]		3000
Maximum rotation speed[r/min]		4000
Maximum current[A]		58.0
Maximum torque[N・m]		90.0
Power rate at continuous rated torque[kW/s]		16.5
Max. deceleration torque of dynamic brake(Tdp)[N・m]		37.35
Motor inertia[$\times 10^{-4}$ kg•m^2]		75.0
(Brake inertia)[$\times 10^{-4}$ kg•m^2]		84.7
Maximum motor shaft conversion load inertia ratio	High-speed, high-accuracy machine[$\times 10^{-4}$ kg•m^2]	225.0
	General machine tool (interpolation axis)[$\times 10^{-4}$ kg•m^2]	375.0
	Non-interpolation axis [$\times 10^{-4}$ kg•m^2]	525.0
Mass	(Without) [kg]	19.0
	(With brake)[kg]	25
Heat-resistant class		155(F)
Degree of protection		IP67 (The shaft-through portion is excluded.)
Quakeproof level[m/s^2] ([G])		X:24.5(2.5), Y:29.4(3)
Axis tolerable load (Taper shaft)	Radial load (*2)[N] ([mm])	-
	Thrust load[N]	-
Axis tolerable load (Straight shaft)	Radial load (*2)[N] ([mm])	2058 (L=79)
	Thrust load[N]	980
Oil level (*3)[mm]		30
Absolute position encoder	16,000,000 p/rev	A74N
	1,000,000 p/rev	A51
	260,000 p/rev	A48

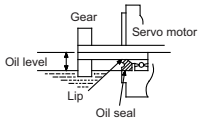
(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)



L : Length from flange installation surface to center of load weight [mm]

(*3)



Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C (with no freezing) Storage: -15°C to +70°C (with no freezing)
Ambient humidity	Operation:80% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Magnetic brake characteristics

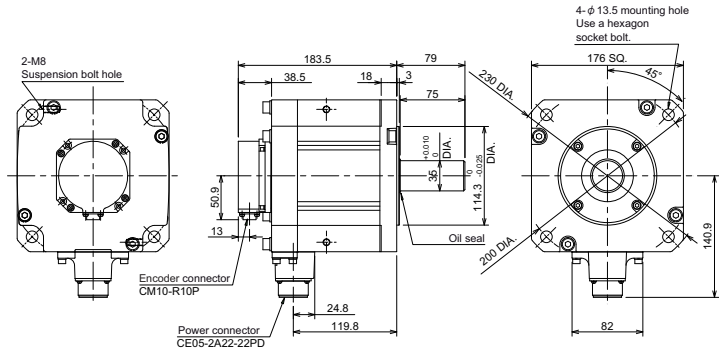
Item	Specifications
Rated voltage	24VDC
Rated current at 20°C[A]	1.4
Static friction torque[N・m]	43.1
Release delay time (*1)[s]	0.1
Braking delay time (DC OFF) (*1)[s]	0.03
Brake life (*2)[times]	20,000

(*1) This is the representative value for the initial attraction gap at 20°C.

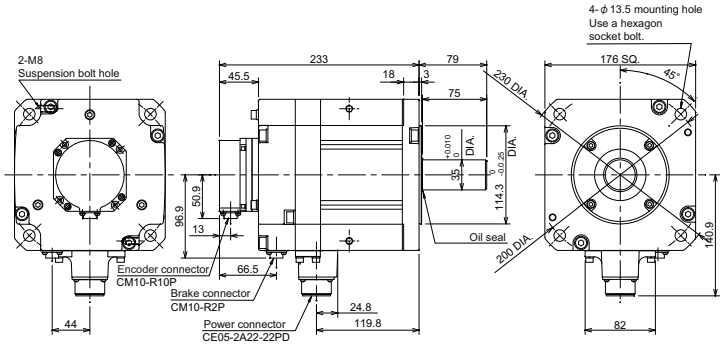
(*2) The brake gap will widen through brake lining wear caused by braking. However, the gap cannot be adjusted. Thus, the brake life is considered to be reached when adjustments are required.

Outline dimension drawings [Unit : mm]

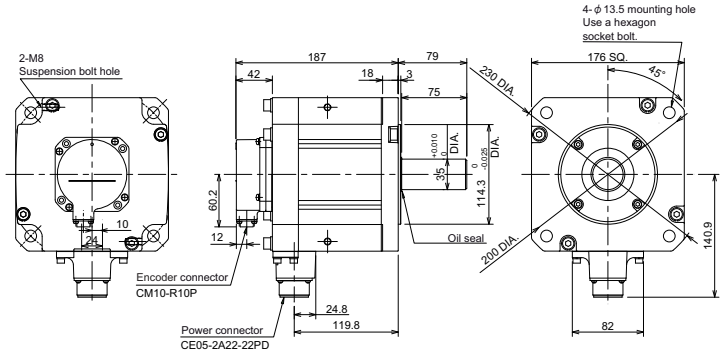
HF-H354S-A48



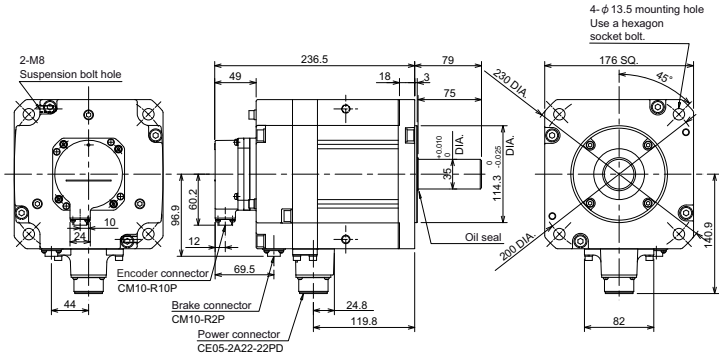
HF-H354BS-A48

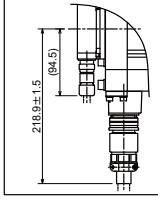
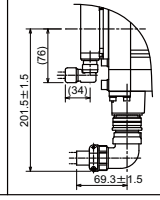
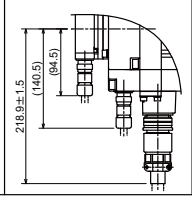
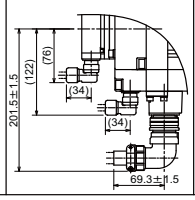
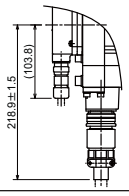
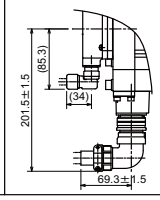
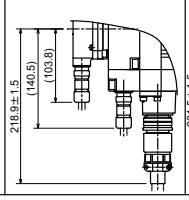
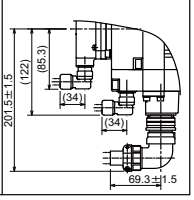


HF-H354S-A51,-A74N



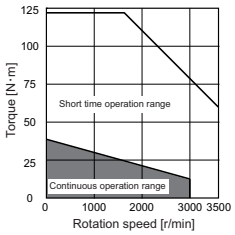
HF-H354BS-A51,-A74N



A48				A51/A74N			
Without brake		With brake		Without brake		With brake	
Straight plug	Right angle plug	Straight plug	Right angle plug	Straight plug	Right angle plug	Straight plug	Right angle plug
							

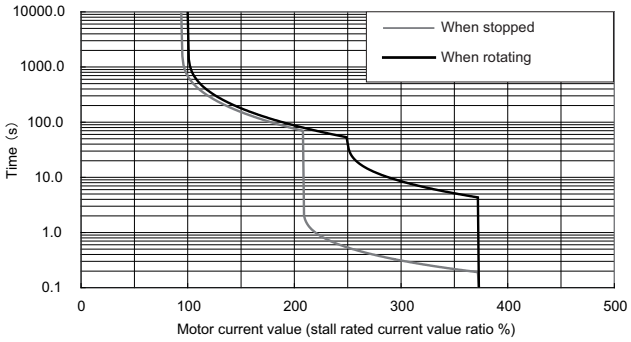
Stall torque	Rated rotation speed	Servo motor type	Explanation of type		
37.2N・m	3000r/min	HF-H453 ☐ S-xxx (1) (2)	(1) Magnetic brake	B	with brake
				None	without brake
			(2) Encoder	XXX	Type

Torque characteristics



Servo overload protection characteristics

DH series

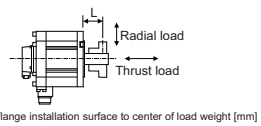


Specifications

Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-DH-V1-80
	2-axis type	MDS-DH-V2-8040 (L) MDS-DH-V2-8080 (L,M) MDS-DH-V2-8080W (L,M)
	Regenerative resistor type	-
Continuous characteristics	Rated output[kW]	4.5
	Rated current[A]	9.3
	Rated torque[N・m]	14.3
	Stall current[A]	17
	Stall torque[N・m]	37.2
Maximum momentary output (For power supply selection)[kW]		22.0
Rated rotation speed[r/min]		3000
Maximum rotation speed[r/min]		3500
Maximum current[A]		53.0
Maximum torque[N・m]		122.0
Power rate at continuous rated torque[kW/s]		18.3
Max. deceleration torque of dynamic brake(Tdp)[N・m]		52.9
Motor inertia[$\times 10^{-4}$ kg•m^2]		112.0
(Brake inertia)[$\times 10^{-4}$ kg•m^2]		121.7
Maximum motor shaft conversion load inertia ratio	High-speed, high-accuracy machine[$\times 10^{-4}$ kg•m^2]	336.0
	General machine tool (interpolation axis)[$\times 10^{-4}$ kg•m^2]	560.0
	Non-interpolation axis [$\times 10^{-4}$ kg•m^2]	784.0
Mass	(Without) [kg]	25
	(With brake)[kg]	31
Heat-resistant class		155(F)
Degree of protection		IP67 (The shaft-through portion is excluded.)
Quakeproof level[m/s^2] ([G])		X:24.5(2.5),Y:29.4(3)
Axis tolerable load (Taper shaft)	Radial load (*2)[N] ([mm])	-
	Thrust load[N]	-
Axis tolerable load (Straight shaft)	Radial load (*2)[N] ([mm])	2058 (L=79)
	Thrust load[N]	980
Oil level (*3)[mm]		30
Absolute position encoder	16,000,000 p/rev	A74N
	1,000,000 p/rev	A51
	260,000 p/rev	A48

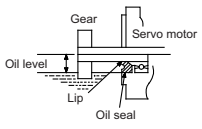
(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)



L : Length from flange installation surface to center of load weight [mm]

(*3)



Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C (with no freezing) Storage: -15°C to +70°C (with no freezing)
Ambient humidity	Operation:80% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Magnetic brake characteristics

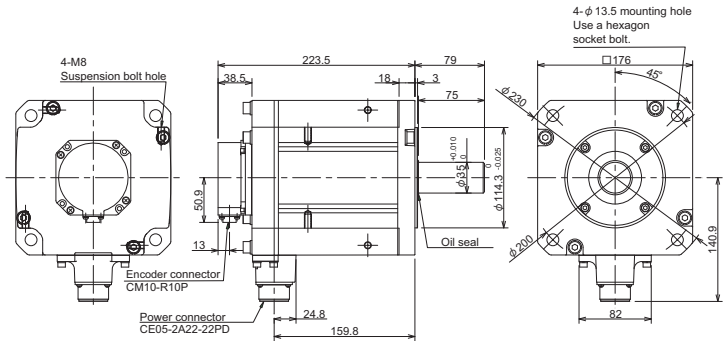
Item	Specifications
Rated voltage	24VDC
Rated current at 20°C[A]	1.4
Static friction torque[N・m]	43.1
Release delay time (*1)[s]	0.1
Braking delay time (DC OFF) (*1)[s]	0.03
Brake life (*2)[times]	20,000

(*1) This is the representative value for the initial attraction gap at 20°C.

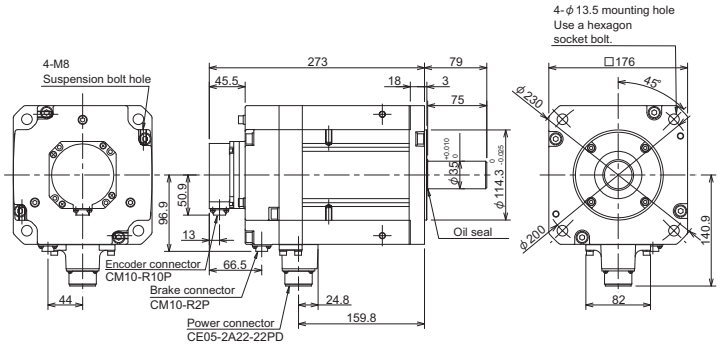
(*2) The brake gap will widen through brake lining wear caused by braking. However, the gap cannot be adjusted. Thus, the brake life is considered to be reached when adjustments are required.

Outline dimension drawings [Unit : mm]

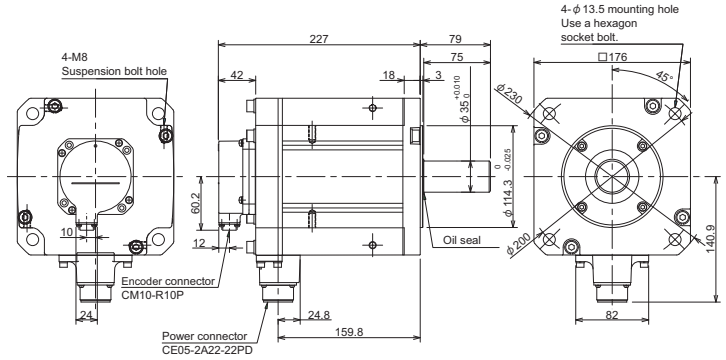
HF-H453S-A48



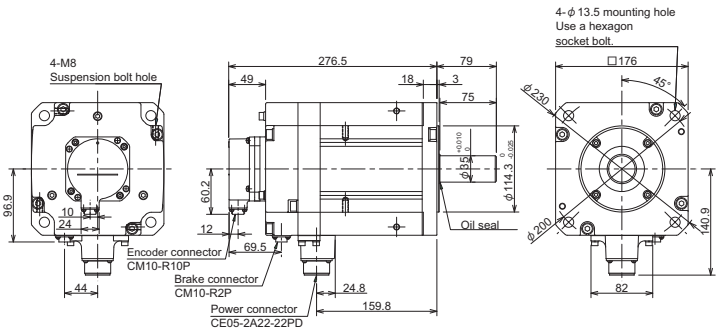
HF-H453BS-A48

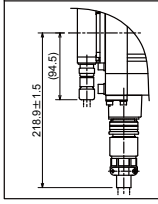
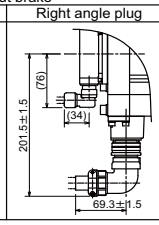
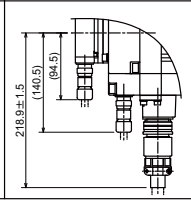
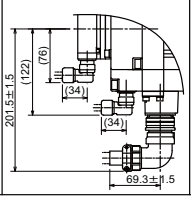
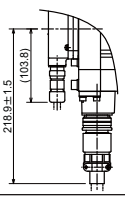
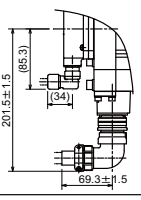
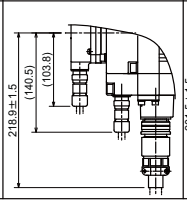
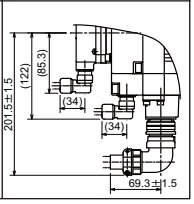


HF-H453S-A51,-A74N



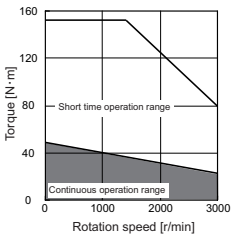
HF-H453BS-A51,-A74N



A48				A51/A74N			
Without brake		With brake		Without brake		With brake	
Straight plug	Right angle plug	Straight plug	Right angle plug	Straight plug	Right angle plug	Straight plug	Right angle plug
							

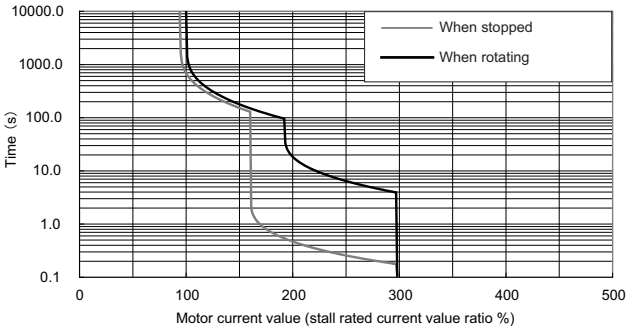
Stall torque	Rated rotation speed	Servo motor type	Explanation of type		
49.0N・m	3000r/min	HF-H703 □ S-xxx (1) (2)	(1) Magnetic brake	B	with brake
				None	without brake
			(2) Encoder	XXX	Type

Torque characteristics



Servo overload protection characteristics

DH series

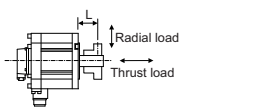


Specifications

Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-DH-V1-80W
	2-axis type	MDS-DH-V2-8080W (L,M)
	Regenerative resistor type	-
Continuous characteristics	Rated output[kW]	7.0
	Rated current[A]	16
	Rated torque[N・m]	22.3
	Stall current[A]	19
	Stall torque[N・m]	49.0
Maximum momentary output (For power supply selection)[kW]		28.0
Rated rotation speed[r/min]		3000
Maximum rotation speed[r/min]		3000
Maximum current[A]		55.0
Maximum torque[N・m]		152.0
Power rate at continuous rated torque[kW/s]		32.2
Max. deceleration torque of dynamic brake(Tdp)[N・m]		71.79
Motor inertia[$\times 10^{-4}$ kg•m^2]		154.0
(Brake inertia)[$\times 10^{-4}$ kg•m^2]		163.7
Maximum motor shaft conversion load inertia ratio	High-speed, high-accuracy machine[$\times 10^{-4}$ kg•m^2]	462.0
	General machine tool (interpolation axis)[$\times 10^{-4}$ kg•m^2]	770.0
	Non-interpolation axis [$\times 10^{-4}$ kg•m^2]	1078.0
Mass	(Without) [kg]	32.0
	(With brake)[kg]	38
Heat-resistant class		155(F)
Degree of protection		IP67 (The shaft-through portion is excluded.)
Quakeproof level[m/s^2] ([G])		X:24.5(2.5),Y:29.4(3)
Axis tolerable load (Taper shaft)	Radial load (*2)[N] ([mm])	-
	Thrust load[N]	-
Axis tolerable load (Straight shaft)	Radial load (*2)[N] ([mm])	2058 (L=79)
	Thrust load[N]	980
Oil level (*3)[mm]		30
Absolute position encoder	16,000,000 p/rev	A74N
	1,000,000 p/rev	A51
	260,000 p/rev	A48

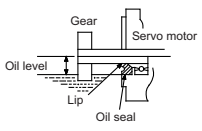
(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)



L : Length from flange installation surface to center of load weight [mm]

(*3)



Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C (with no freezing) Storage: -15°C to +70°C (with no freezing)
Ambient humidity	Operation:80% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Magnetic brake characteristics

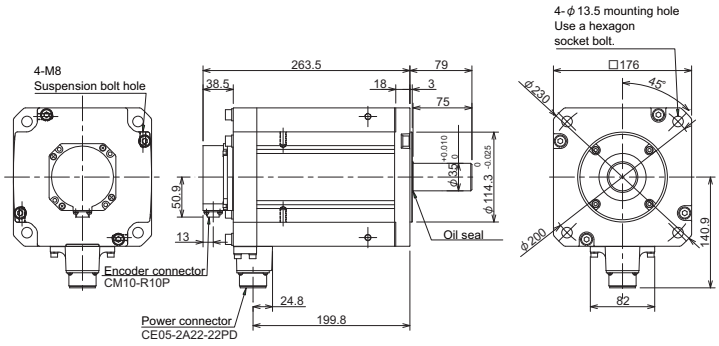
Item	Specifications
Rated voltage	24VDC
Rated current at 20°C[A]	1.4
Static friction torque[N・m]	43.1
Release delay time (*1)[s]	0.1
Braking delay time (DC OFF) (*1)[s]	0.03
Brake life (*2)[times]	20,000

(*1) This is the representative value for the initial attraction gap at 20°C.

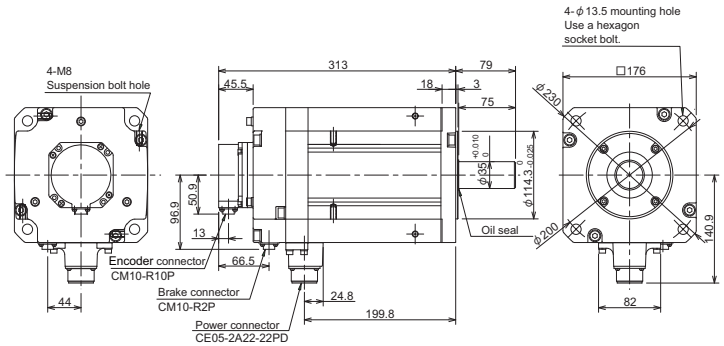
(*2) The brake gap will widen through brake lining wear caused by braking. However, the gap cannot be adjusted. Thus, the brake life is considered to be reached when adjustments are required.

Outline dimension drawings [Unit : mm]

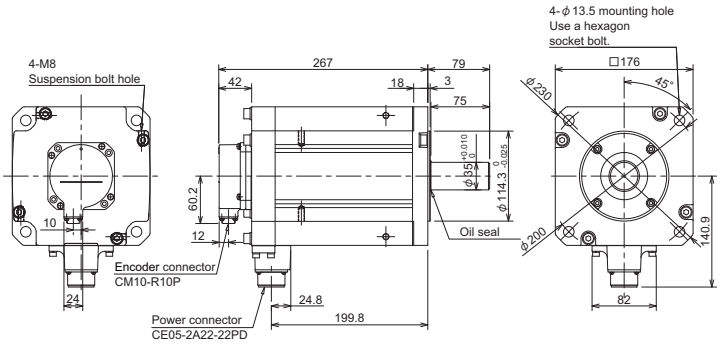
HF-H703S-A48



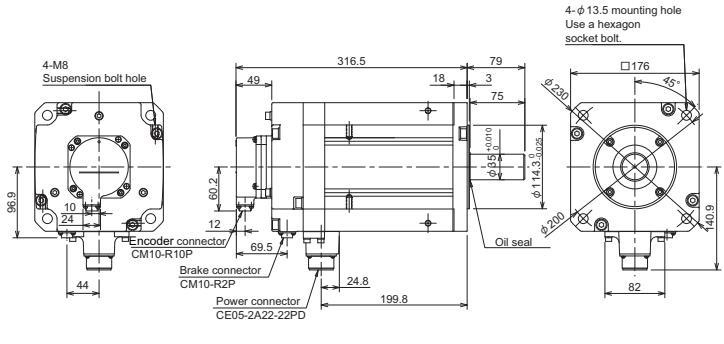
HF-H703BS-A48

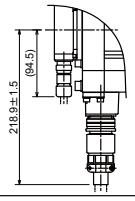
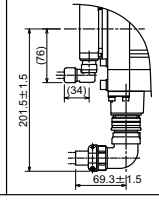
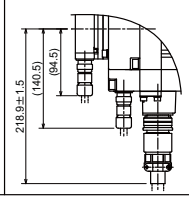
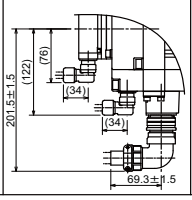
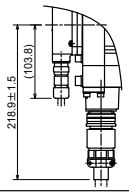
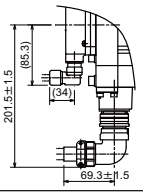
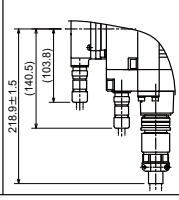
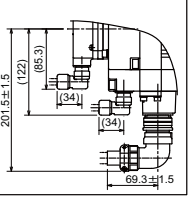


HF-H703S-A51,-A74N



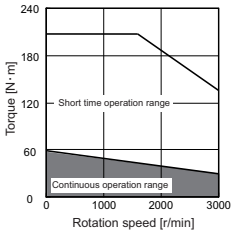
HF-H703BS-A51,-A74N



A48				A51/A74N			
Without brake		With brake		Without brake		With brake	
Straight plug	Right angle plug	Straight plug	Right angle plug	Straight plug	Right angle plug	Straight plug	Right angle plug
							

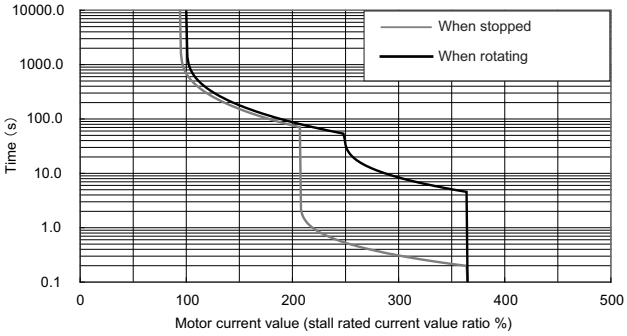
Stall torque	Rated rotation speed	Servo motor type	Explanation of type		
58.8N・m	3000r/min	HF-H903 ☐ S-xxx (1) (2)	(1) Magnetic brake	B	with brake
				None	without brake
			(2) Encoder	XXX	Type

Torque characteristics



Servo overload protection characteristics

DH series

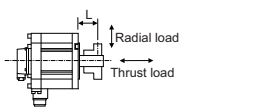


Specifications

Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-DH-V1-160
	2-axis type	-
	Regenerative resistor type	-
Continuous characteristics	Rated output[kW]	9.0
	Rated current[A]	17
	Rated torque[N・m]	28.7
	Stall current[A]	28
	Stall torque[N・m]	58.8
Maximum momentary output (For power supply selection)[kW]		41.0
Rated rotation speed[r/min]		3000
Maximum rotation speed[r/min]		3000
Maximum current[A]		102.0
Maximum torque[N・m]		208.0
Power rate at continuous rated torque[kW/s]		42.1
Max. deceleration torque of dynamic brake(Tdp)[N・m]		89.57
Motor inertia[$\times 10^{-4}$ kg•m^2]		196.0
(Brake inertia)[$\times 10^{-4}$ kg•m^2]		205.7
Maximum motor shaft conversion load inertia ratio	High-speed, high-accuracy machine[$\times 10^{-4}$ kg•m^2]	588.0
	General machine tool (interpolation axis)[$\times 10^{-4}$ kg•m^2]	980.0
	Non-interpolation axis [$\times 10^{-4}$ kg•m^2]	1372.0
Mass	(Without) [kg]	43
	(With brake)[kg]	49
Heat-resistant class		155(F)
Degree of protection		IP67 (The shaft-through portion is excluded.)
Quakeproof level[m/s^2] ([G])		X:9.8(1), Y:9.8(1)
Axis tolerable load (Taper shaft)	Radial load (*2)[N] ([mm])	-
	Thrust load[N]	-
Axis tolerable load (Straight shaft)	Radial load (*2)[N] ([mm])	2450 (L=85)
	Thrust load[N]	980
Oil level (*3)[mm]		34
Absolute position encoder	16,000,000 p/rev	A74N
	1,000,000 p/rev	A51
	260,000 p/rev	A48

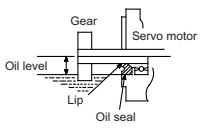
(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)



L : Length from flange installation surface to center of load weight [mm]

(*3)



Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C (with no freezing) Storage: -15°C to +70°C (with no freezing)
Ambient humidity	Operation:80% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Magnetic brake characteristics

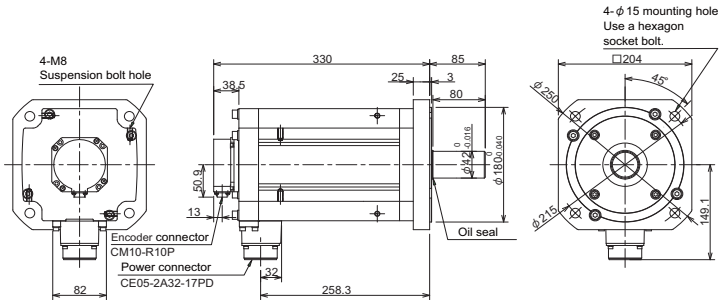
Item	Specifications
Rated voltage	24VDC
Rated current at 20°C[A]	1.4
Static friction torque[N・m]	43.1
Release delay time (*1)[s]	0.1
Braking delay time (DC OFF) (*1)[s]	0.03
Brake life (*2)[times]	20,000

(*1) This is the representative value for the initial attraction gap at 20°C.

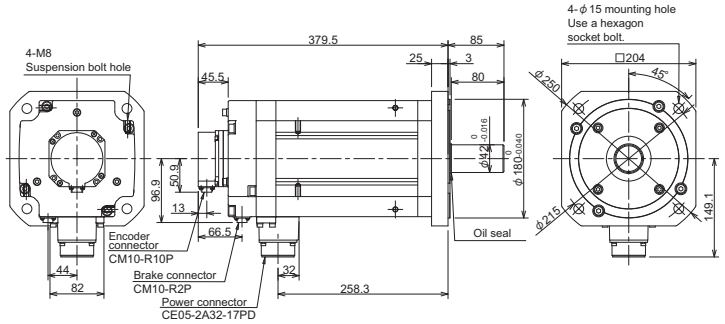
(*2) The brake gap will widen through brake lining wear caused by braking. However, the gap cannot be adjusted. Thus, the brake life is considered to be reached when adjustments are required.

Outline dimension drawings [Unit : mm]

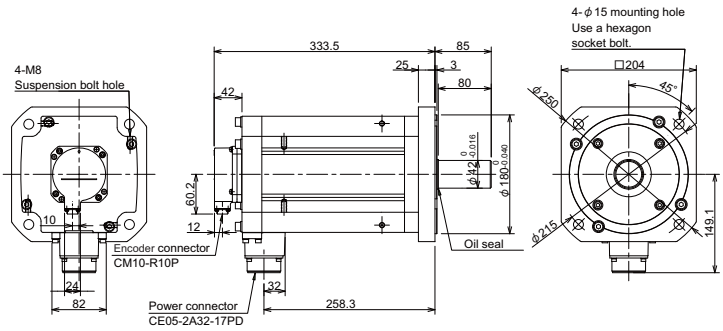
HF-H903S-A48



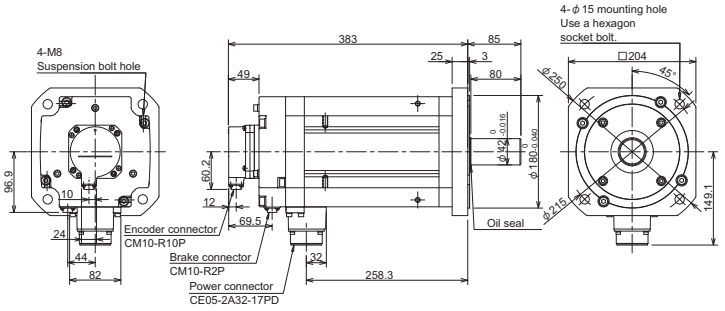
HF-H903BS-A48

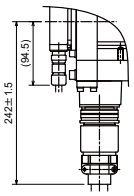
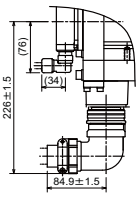
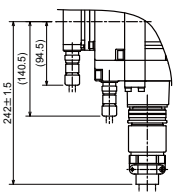
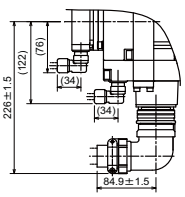
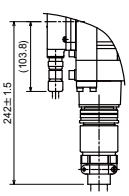
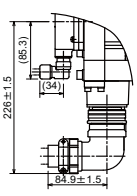
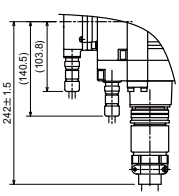
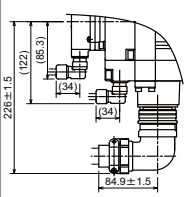


HF-H903S-A51,-A74N



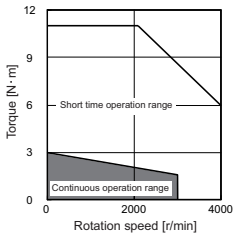
HF-H903BS-A51,-A74N



A48				A51/A74N			
Without brake		With brake		Without brake		With brake	
Straight plug	Right angle plug	Straight plug	Right angle plug	Straight plug	Right angle plug	Straight plug	Right angle plug
							

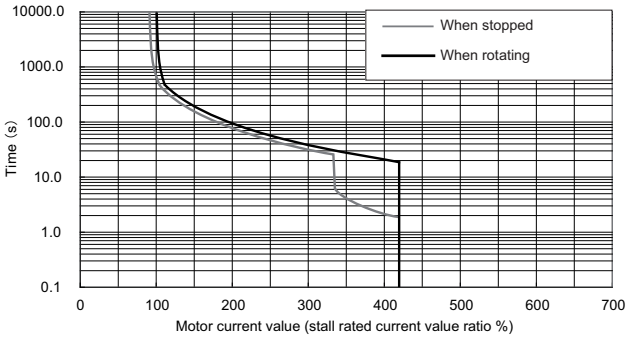
Stall torque	Rated rotation speed	Servo motor type	Explanation of type		
3.0N・m	3000r/min	HP-H54 (1)(2) (3) -xxx	(1) Magnetic brake	B	with brake
				None	without brake
			(2) Shaft end	S	Straight
				T	Taper
			(3) Encoder	XXX	Type

Torque characteristics



Servo overload protection characteristics

DH series

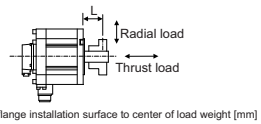


Specifications

Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-DH-V1-20
	2-axis type	MDS-DH-V2-2010 (L) MDS-DH-V2-2020 (L,M) MDS-DH-V2-4020 (M)
	Regenerative resistor type	-
Continuous characteristics	Rated output[kW]	0.5
	Rated current[A]	0.9
	Rated torque[N・m]	1.6
	Stall current[A]	2.2
	Stall torque[N・m]	3.0
Maximum momentary output (For power supply selection)[kW]		2.3
Rated rotation speed[r/min]		3000
Maximum rotation speed[r/min]		4000
Maximum current[A]		8.4
Maximum torque[N・m]		11.0
Power rate at continuous rated torque[kW/s]		5.5
Max. deceleration torque of dynamic brake(Tdp)[N・m]		6.32
Motor inertia[$\times 10^{-4}$ kg•m^2]		4.6
(Brake inertia)[$\times 10^{-4}$ kg•m^2]		5.1
Maximum motor shaft conversion load inertia ratio	High-speed, high-accuracy machine[$\times 10^{-4}$ kg•m^2]	13.8
	General machine tool (interpolation axis)[$\times 10^{-4}$ kg•m^2]	23.0
	Non-interpolation axis [$\times 10^{-4}$ kg•m^2]	46.0
Mass	(Without) [kg]	6.0
	(With brake)[kg]	7.3
Heat-resistant class		155(F)
Degree of protection		IP67 (The shaft-through portion is excluded.)
Quakeproof level[m/s^2] ([G])		X:24.5(2.5), Y:24.5(2.5)
Axis tolerable load (Taper shaft)	Radial load (*2)[N] ([mm])	392 (L=52.7)
	Thrust load[N]	490
Axis tolerable load (Straight shaft)	Radial load (*2)[N] ([mm])	980 (L=52.7)
	Thrust load[N]	490
Oil level (*3)[mm]		20
Absolute position encoder	16,000,000 p/rev	A74N
	1,000,000 p/rev	A51
	260,000 p/rev	A48

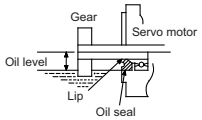
(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)



L : Length from flange installation surface to center of load weight [mm]

(*3)



Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C (with no freezing) Storage: -15°C to +70°C (with no freezing)
Ambient humidity	Operation:80% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Magnetic brake characteristics

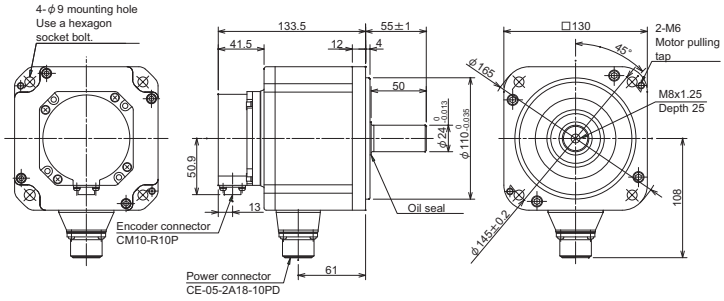
Item	Specifications
Rated voltage	24VDC
Rated current at 20°C[A]	0.91
Static friction torque[N・m]	3.5
Release delay time (*1)[s]	0.1
Braking delay time (DC OFF) (*1)[s]	0.1
Brake life (*2)[times]	20,000

(*1) This is the representative value for the initial attraction gap at 20°C.

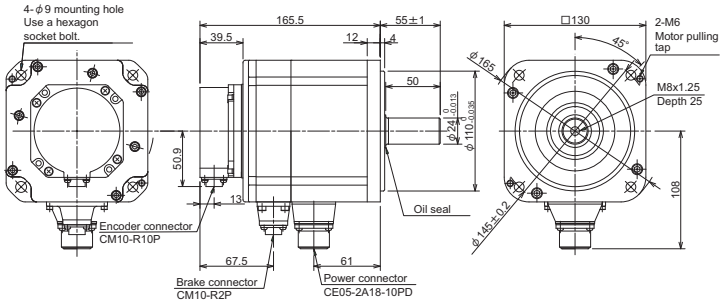
(*2) The brake gap will widen through brake lining wear caused by braking. However, the gap cannot be adjusted. Thus, the brake life is considered to be reached when adjustments are required.

Outline dimension drawings [Unit : mm]

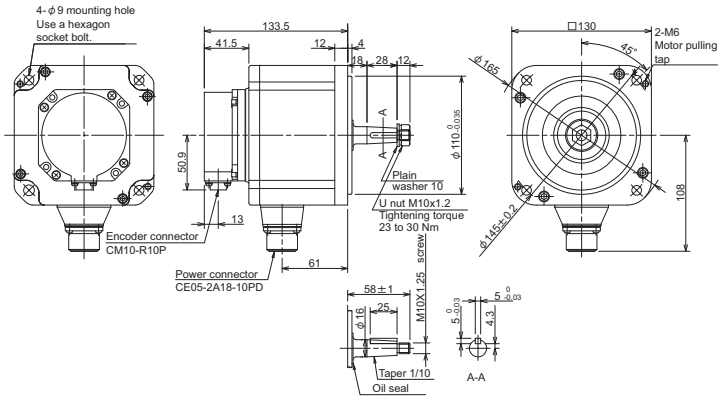
HP-H54S-A48



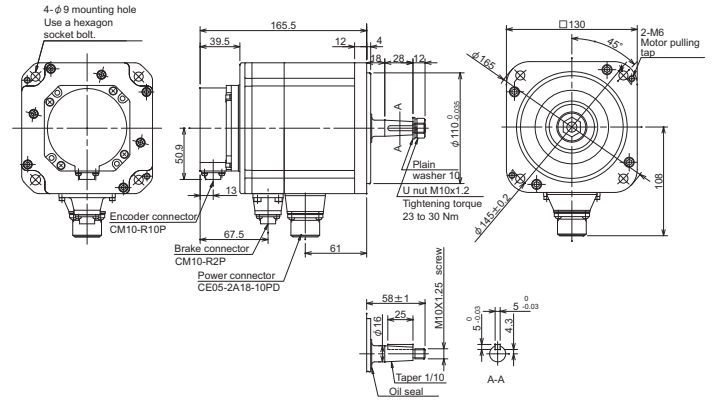
HP-H54BS-A48



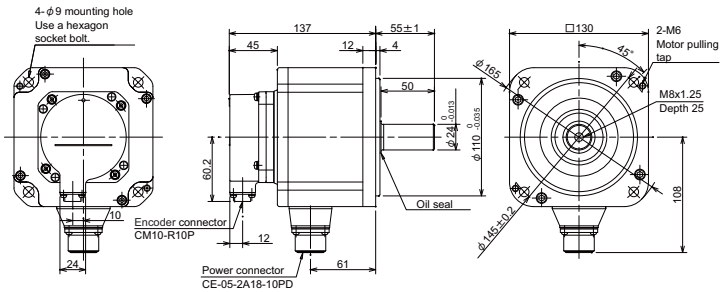
HP-H54T-A48



HP-H54BT-A48



HP-H54S-A51,-A74N



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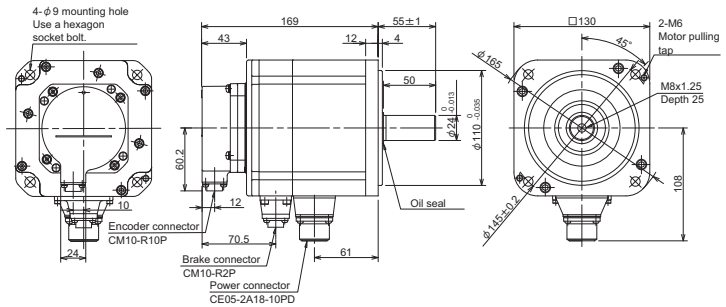

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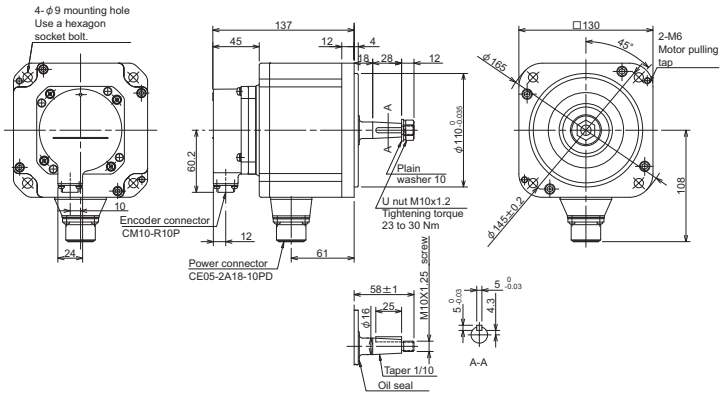

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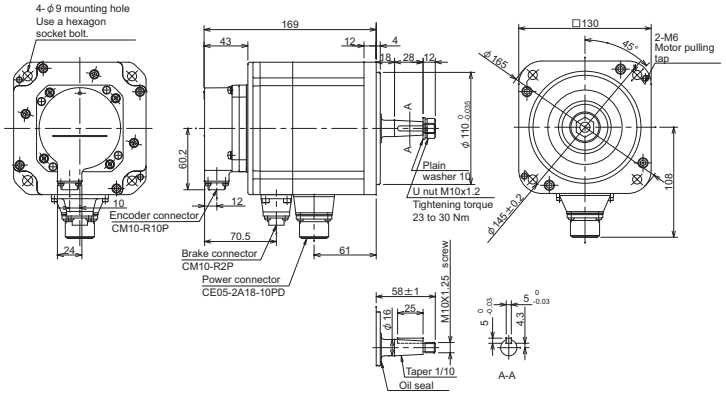
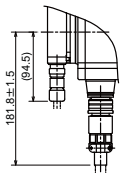
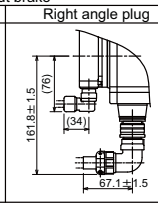
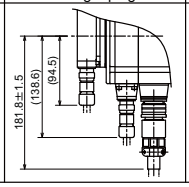
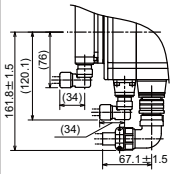
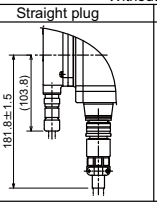
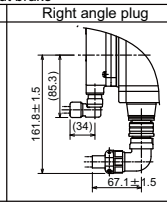
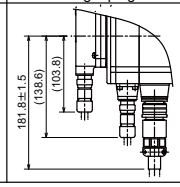
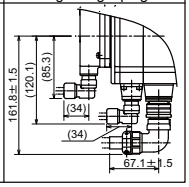
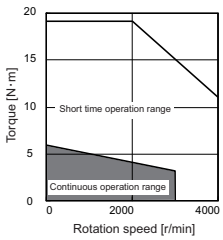


A48				A51/A74N			
Without brake		With brake		Without brake		With brake	
Straight plug	Right angle plug	Straight plug	Right angle plug	Straight plug	Right angle plug	Straight plug	Right angle plug
							

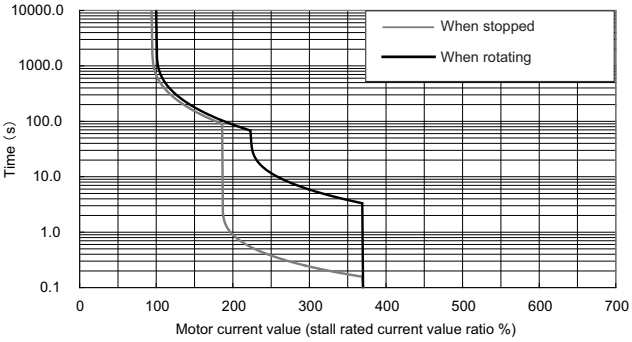
Stall torque	Rated rotation speed	Servo motor type	Explanation of type		
5.9N・m	3000r/min	HP-H104 (1)(2) (3) -xxx	(1) Magnetic brake	B	with brake
				None	without brake
			(2) Shaft end	S	Straight
				T	Taper
			(3) Encoder	XXX	Type

Torque characteristics



Servo overload protection characteristics

DH series

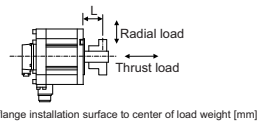


Specifications

Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-DH-V1-20
	2-axis type	MDS-DH-V2-2010 (L) MDS-DH-V2-2020 (L,M) MDS-DH-V2-4020 (M)
	Regenerative resistor type	-
Continuous characteristics	Rated output[kW]	1.0
	Rated current[A]	1.8
	Rated torque[N・m]	3.2
	Stall current[A]	3.9
	Stall torque[N・m]	5.9
Maximum momentary output (For power supply selection)[kW]		4.3
Rated rotation speed[r/min]		3000
Maximum rotation speed[r/min]		4000
Maximum current[A]		12.8
Maximum torque[N・m]		19.2
Power rate at continuous rated torque[kW/s]		13.0
Max. deceleration torque of dynamic brake(Tdp)[N・m]		11.10
Motor inertia[$\times10^{-4}$ kg•m^2]		7.7
(Brake inertia)[$\times10^{-4}$ kg•m^2]		8.2
Maximum motor shaft conversion load inertia ratio	High-speed, high-accuracy machine[$\times10^{-4}$ kg•m^2]	23.1
	General machine tool (interpolation axis)[$\times10^{-4}$ kg•m^2]	38.5
	Non-interpolation axis [$\times10^{-4}$ kg•m^2]	77.0
Mass	(Without) [kg]	7.0
	(With brake)[kg]	8.5
Heat-resistant class		155(F)
Degree of protection		IP67 (The shaft-through portion is excluded.)
Quakeproof level[m/s^2] ([G])		X:24.5(2.5), Y:24.5(2.5)
Axis tolerable load (Taper shaft)	Radial load (*2)[N] ([mm])	392 (L=52.7)
	Thrust load[N]	490
Axis tolerable load (Straight shaft)	Radial load (*2)[N] ([mm])	980 (L=52.7)
	Thrust load[N]	490
Oil level (*3)[mm]		20
Absolute position encoder	16,000,000 p/rev	A74N
	1,000,000 p/rev	A51
	260,000 p/rev	A48

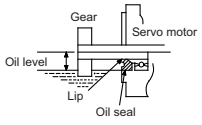
(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)



L : Length from flange installation surface to center of load weight [mm]

(*3)



Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C (with no freezing) Storage: -15°C to +70°C (with no freezing)
Ambient humidity	Operation:80% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Magnetic brake characteristics

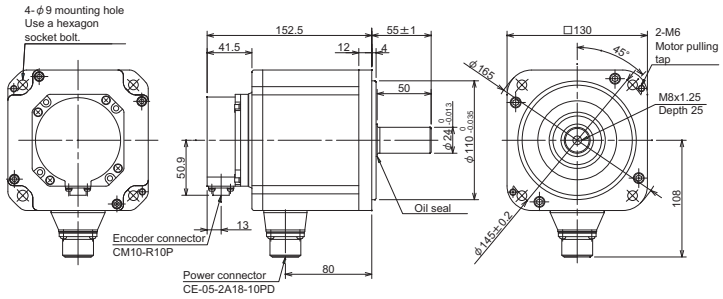
Item	Specifications
Rated voltage	24VDC
Rated current at 20°C[A]	0.86
Static friction torque[N・m]	9
Release delay time (*1)[s]	0.1
Braking delay time (DC OFF) (*1)[s]	0.1
Brake life (*2)[times]	20,000

(*1) This is the representative value for the initial attraction gap at 20°C.

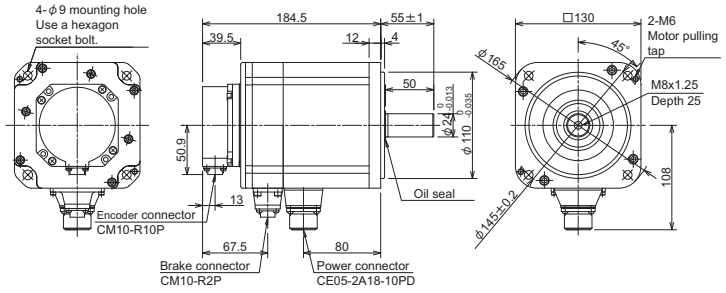
(*2) The brake gap will widen through brake lining wear caused by braking. However, the gap cannot be adjusted. Thus, the brake life is considered to be reached when adjustments are required.

Outline dimension drawings [Unit : mm]

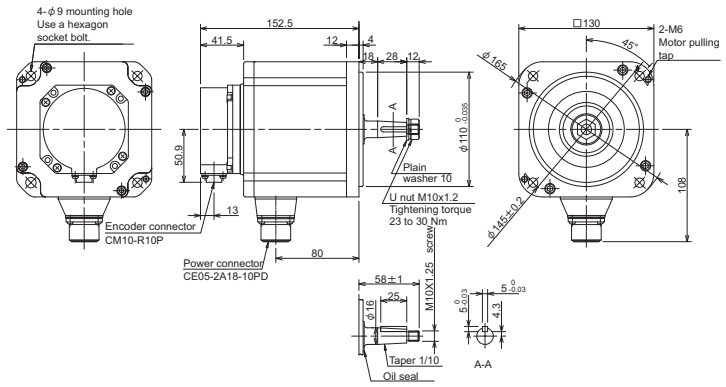
HP-H104S-A48



HP-H104BS-A48



HP-H104T-A48



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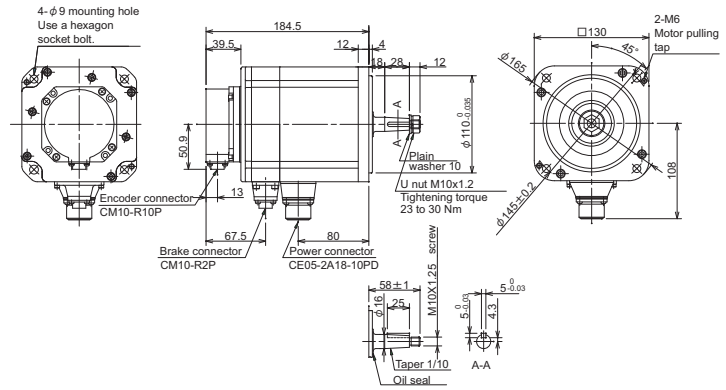
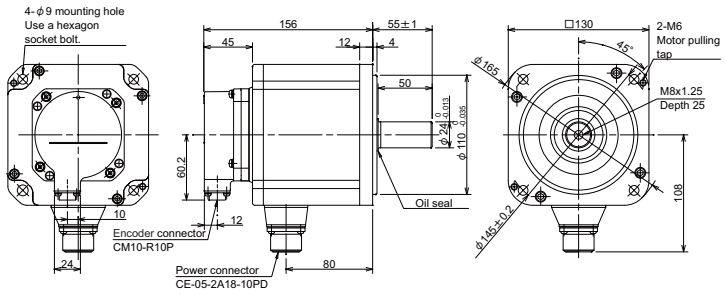


HP-H104S-A51,-A74N



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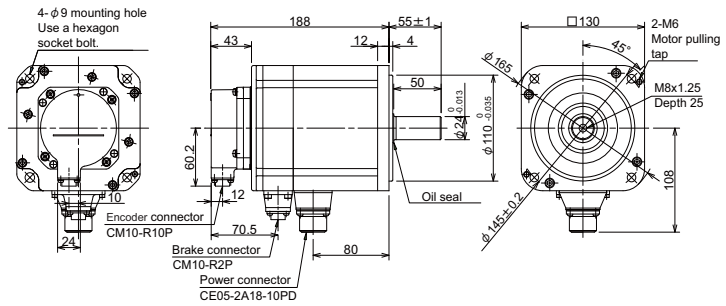

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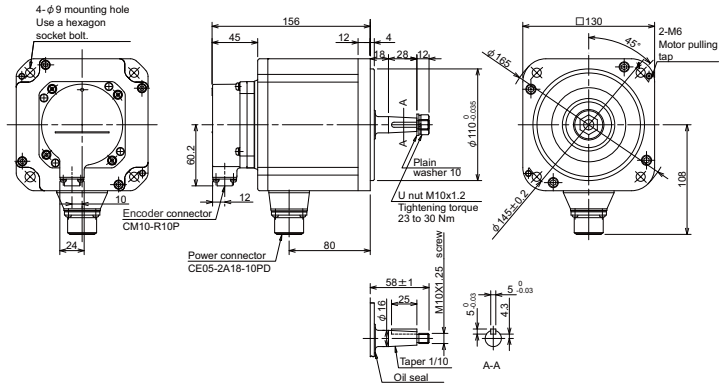

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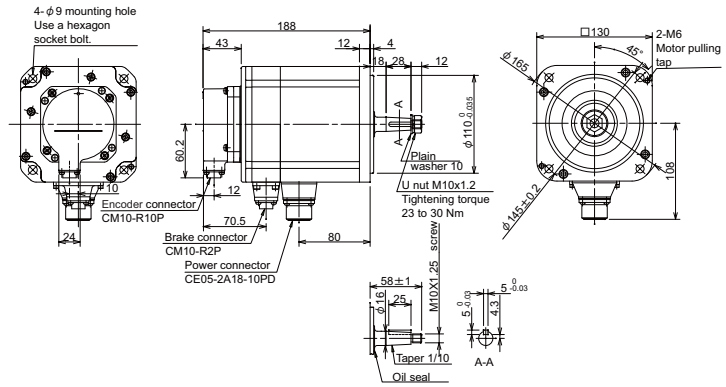
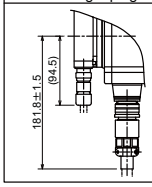
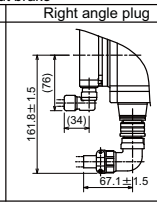
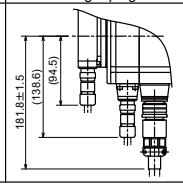
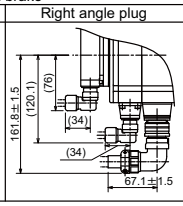
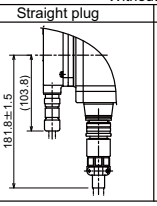
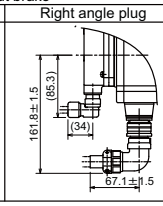
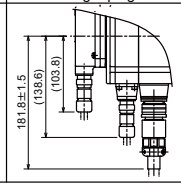
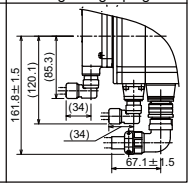
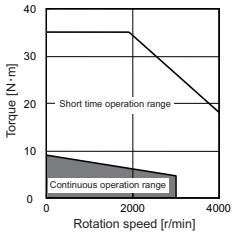


A48				A51/A74N			
Without brake		With brake		Without brake		With brake	
Straight plug	Right angle plug	Straight plug	Right angle plug	Straight plug	Right angle plug	Straight plug	Right angle plug
							

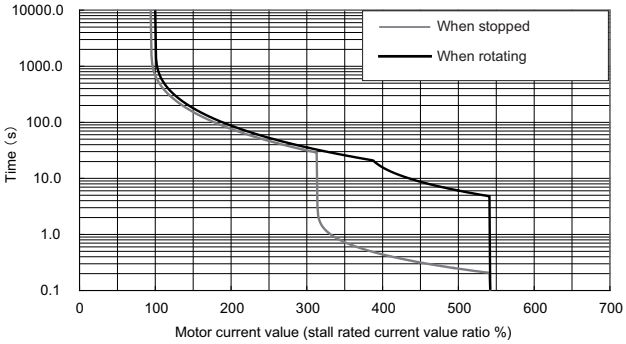
Stall torque	Rated rotation speed	Servo motor type	Explanation of type		
9.0N・m	3000r/min	HP-H154 (1)(2) (3) -xxx	(1) Magnetic brake	B	with brake
				None	without brake
			(2) Shaft end	S	Straight
				T	Taper
			(3) Encoder	XXX	Type

Torque characteristics



Servo overload protection characteristics

DH series

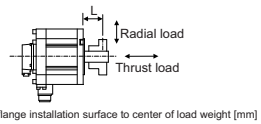


Specifications

Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-DH-V1-40
	2-axis type	MDS-DH-V2-4020 (L) MDS-DH-V2-4040 (L,M) MDS-DH-V2-8040 (M)
	Regenerative resistor type	-
Continuous characteristics	Rated output[kW]	1.5
	Rated current[A]	3.1
	Rated torque[N・m]	4.8
	Stall current[A]	4.8
	Stall torque[N・m]	9.0
Maximum momentary output (For power supply selection)[kW]		8.0
Rated rotation speed[r/min]		3000
Maximum rotation speed[r/min]		4000
Maximum current[A]		26.0
Maximum torque[N・m]		36.5
Power rate at continuous rated torque[kW/s]		19.0
Max. deceleration torque of dynamic brake(Tdp)[N・m]		18.08
Motor inertia[$\times 10^{-4}$ kg•m^2]		12.0
(Brake inertia)[$\times 10^{-4}$ kg•m^2]		12.5
Maximum motor shaft conversion load inertia ratio	High-speed, high-accuracy machine[$\times 10^{-4}$ kg•m^2]	36.0
	General machine tool (interpolation axis)[$\times 10^{-4}$ kg•m^2]	60.0
	Non-interpolation axis [$\times 10^{-4}$ kg•m^2]	120.0
Mass	(Without) [kg]	8.0
	(With brake)[kg]	9.5
Heat-resistant class		155(F)
Degree of protection		IP67 (The shaft-through portion is excluded.)
Quakeproof level[m/s^2] ([G])		X:24.5(2.5), Y:24.5(2.5)
Axis tolerable load (Taper shaft)	Radial load (*2)[N] ([mm])	392 (L=52.7)
	Thrust load[N]	490
Axis tolerable load (Straight shaft)	Radial load (*2)[N] ([mm])	980 (L=52.7)
	Thrust load[N]	490
Oil level (*3)[mm]		20
Absolute position encoder	16,000,000 p/rev	A74N
	1,000,000 p/rev	A51
	260,000 p/rev	A48

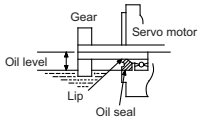
(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)



L : Length from flange installation surface to center of load weight [mm]

(*3)



Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C (with no freezing) Storage: -15°C to +70°C (with no freezing)
Ambient humidity	Operation:80% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Magnetic brake characteristics

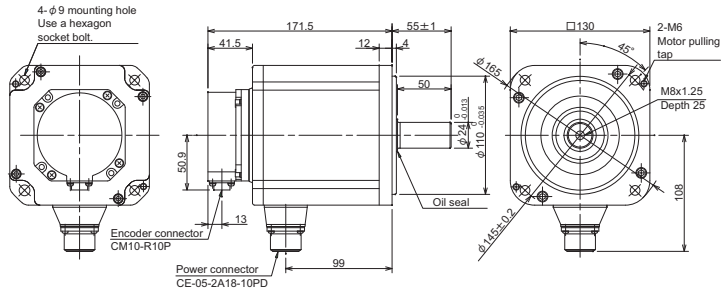
Item	Specifications
Rated voltage	24VDC
Rated current at 20°C[A]	0.86
Static friction torque[N・m]	9
Release delay time (*1)[s]	0.1
Braking delay time (DC OFF) (*1)[s]	0.1
Brake life (*2)[times]	20,000

(*1) This is the representative value for the initial attraction gap at 20°C.

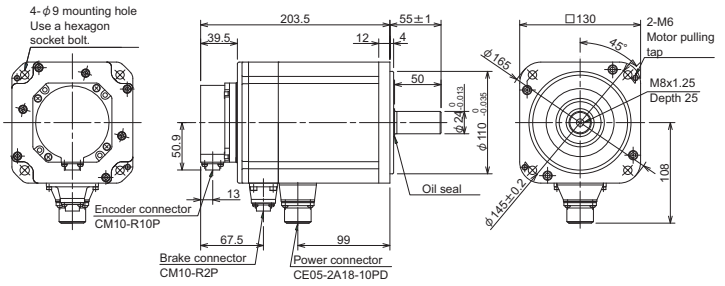
(*2) The brake gap will widen through brake lining wear caused by braking. However, the gap cannot be adjusted. Thus, the brake life is considered to be reached when adjustments are required.

Outline dimension drawings [Unit : mm]

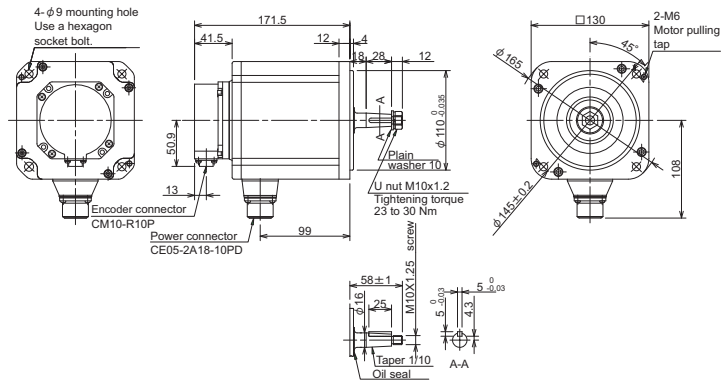
HP-H154S-A48



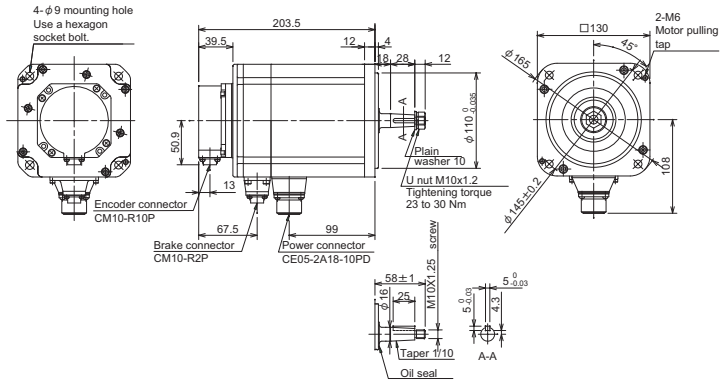
HP-H154BS-A48



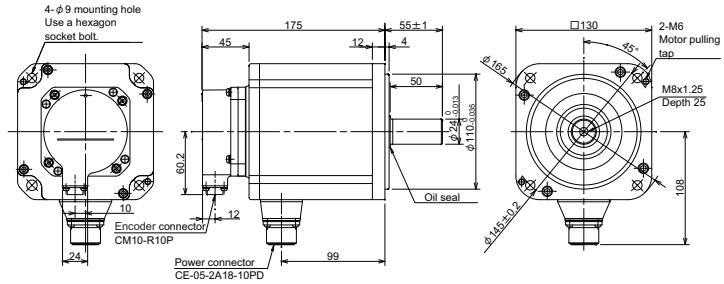
HP-H154T-A48



HP-H154BT-A48



HP-H154S-A51,-A74N



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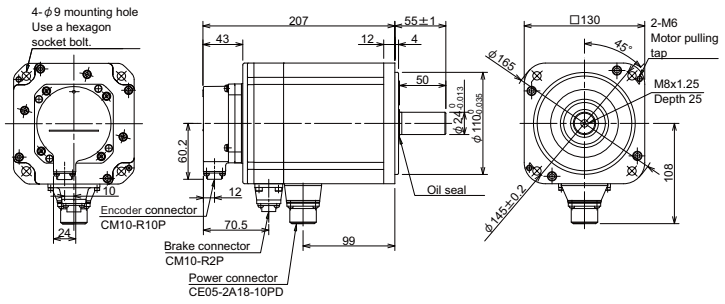

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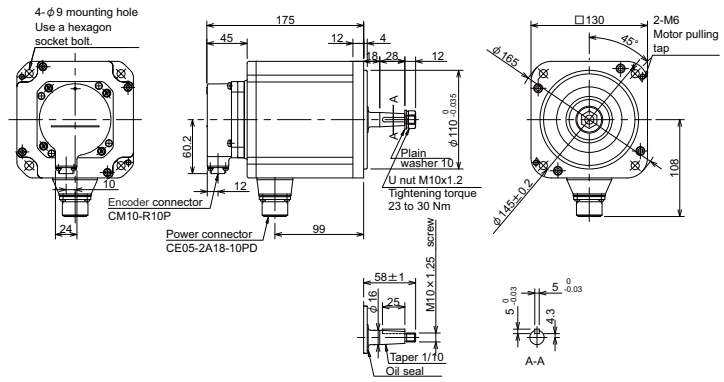

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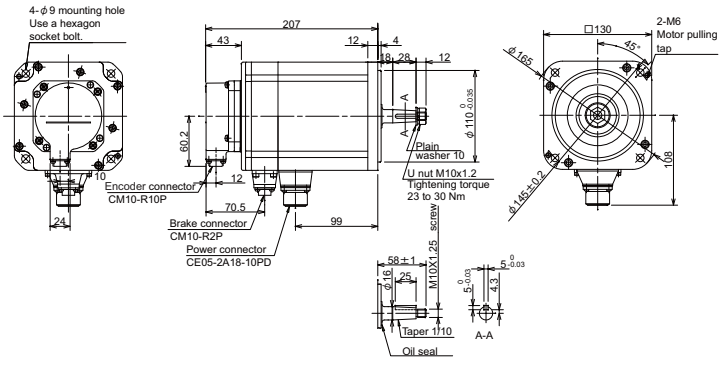
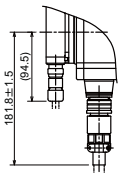
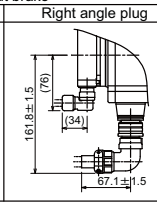
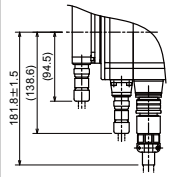
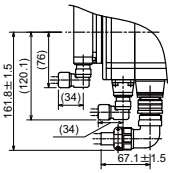
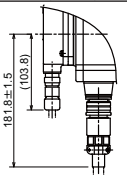
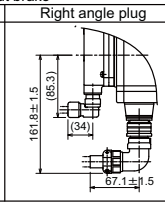
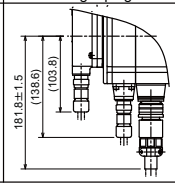
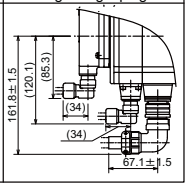
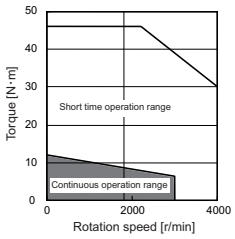


A48				A51/A74N			
Without brake		With brake		Without brake		With brake	
Straight plug	Right angle plug	Straight plug	Right angle plug	Straight plug	Right angle plug	Straight plug	Right angle plug
							

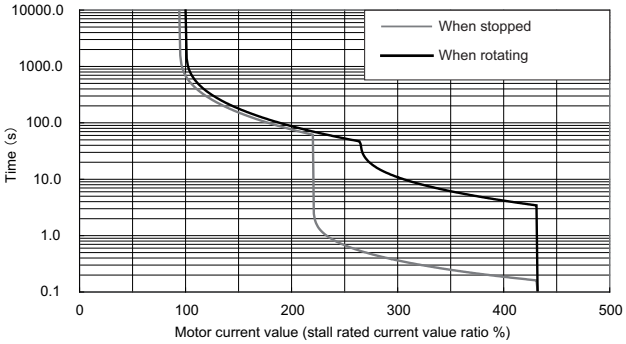
Stall torque	Rated rotation speed	Servo motor type	Explanation of type		
12.0N・m	3000r/min	HP-H224 (1)(2) (3) -xxx	(1) Magnetic brake	B	with brake
				None	without brake
			(2) Shaft end	S	Straight
				T	Taper
			(3) Encoder	XXX	Type

Torque characteristics



Servo overload protection characteristics

DH series

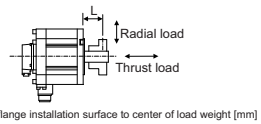


Specifications

Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-DH-V1-40
	2-axis type	MDS-DH-V2-4020 (L) MDS-DH-V2-4040 (L,M) MDS-DH-V2-8040 (M)
	Regenerative resistor type	-
Continuous characteristics	Rated output[kW]	2.2
	Rated current[A]	4.0
	Rated torque[N・m]	6.4
	Stall current[A]	7.0
	Stall torque[N・m]	12.0
Maximum momentary output (For power supply selection)[kW]		11.0
Rated rotation speed[r/min]		3000
Maximum rotation speed[r/min]		4000
Maximum current[A]		28.5
Maximum torque[N・m]		46.0
Power rate at continuous rated torque[kW/s]		20.0
Max. deceleration torque of dynamic brake(Tdp)[N・m]		28.65
Motor inertia[$\times10^{-4}$ kg•m^2]		20.0
(Brake inertia)[$\times10^{-4}$ kg•m^2]		20.5
Maximum motor shaft conversion load inertia ratio	High-speed, high-accuracy machine[$\times10^{-4}$ kg•m^2]	60.0
	General machine tool (interpolation axis)[$\times10^{-4}$ kg•m^2]	100.0
	Non-interpolation axis [$\times10^{-4}$ kg•m^2]	200.0
Mass	(Without) [kg]	12.0
	(With brake)[kg]	13.9
Heat-resistant class		155(F)
Degree of protection		IP67 (The shaft-through portion is excluded.)
Quakeproof level[m/s^2] ([G])		X:24.5(2.5), Y:24.5(2.5)
Axis tolerable load (Taper shaft)	Radial load (*2)[N] ([mm])	392 (L=52.7)
	Thrust load[N]	490
Axis tolerable load (Straight shaft)	Radial load (*2)[N] ([mm])	980 (L=52.7)
	Thrust load[N]	490
Oil level (*3)[mm]		20
Absolute position encoder	16,000,000 p/rev	A74N
	1,000,000 p/rev	A51
	260,000 p/rev	A48

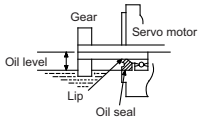
(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)



L : Length from flange installation surface to center of load weight [mm]

(*3)



Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C (with no freezing) Storage: -15°C to +70°C (with no freezing)
Ambient humidity	Operation:80% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Magnetic brake characteristics

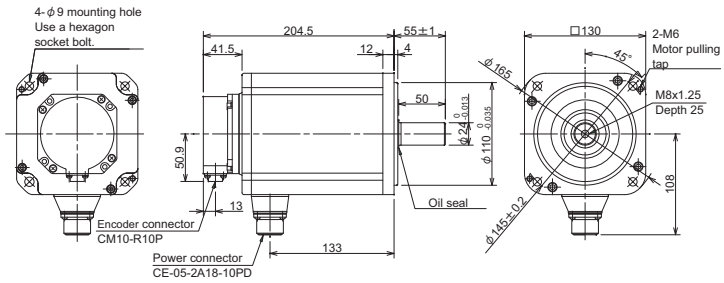
Item	Specifications
Rated voltage	24VDC
Rated current at 20°C[A]	1.0
Static friction torque[N・m]	12
Release delay time (*1)[s]	0.1
Braking delay time (DC OFF) (*1)[s]	0.1
Brake life (*2)[times]	20,000

(*1) This is the representative value for the initial attraction gap at 20°C.

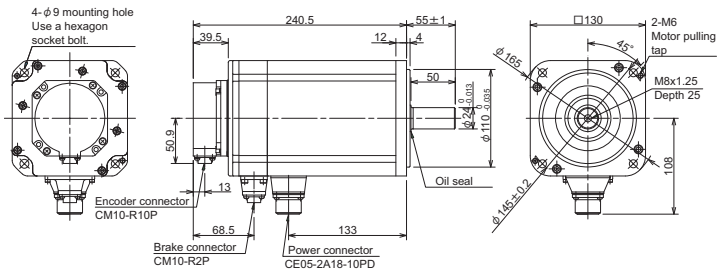
(*2) The brake gap will widen through brake lining wear caused by braking. However, the gap cannot be adjusted. Thus, the brake life is considered to be reached when adjustments are required.

Outline dimension drawings [Unit : mm]

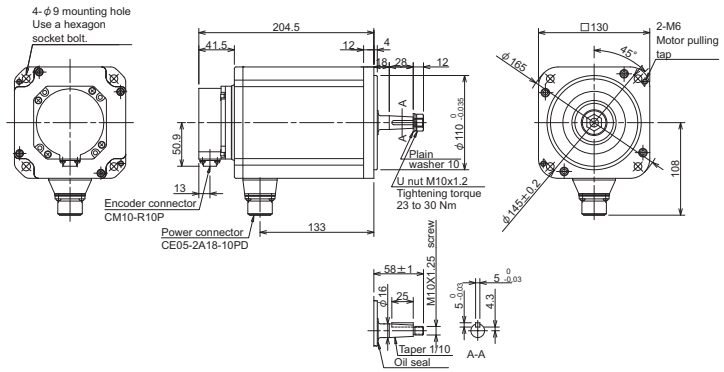
HP-H224S-A48



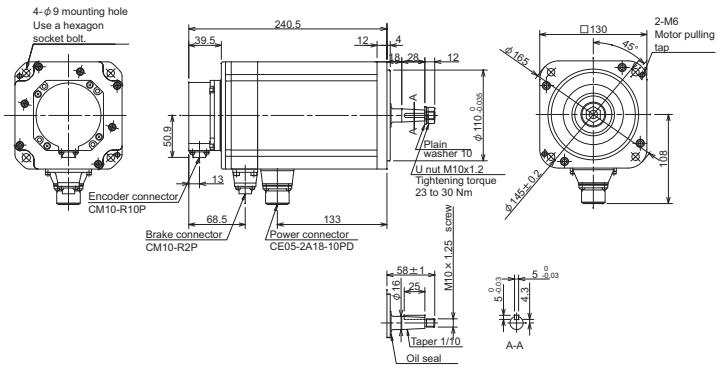
HP-H224BS-A48



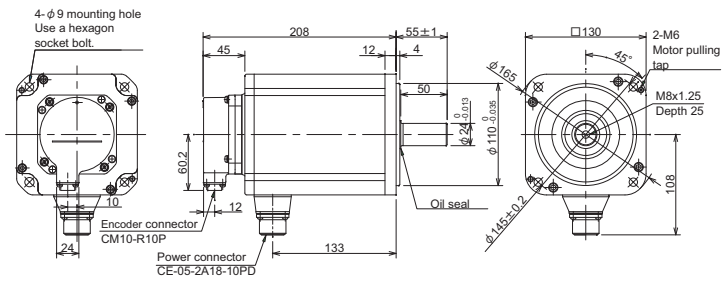
HP-H224T-A48



HP-H224BT-A48



HP-H224S-A51,-A74N



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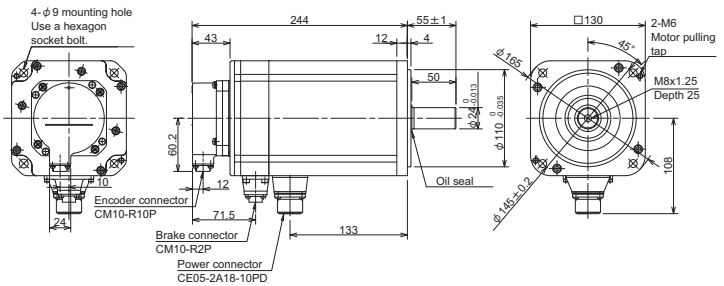

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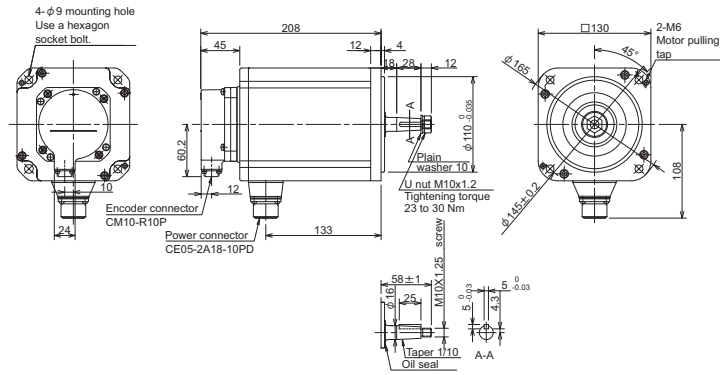
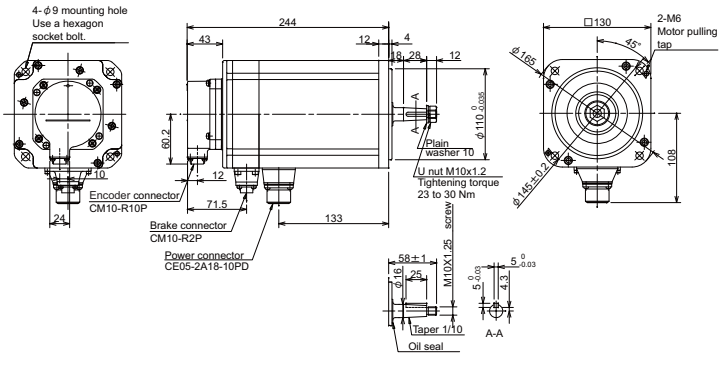
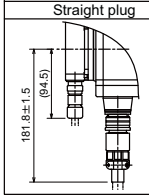
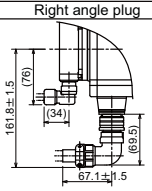
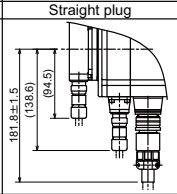
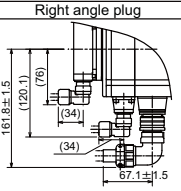
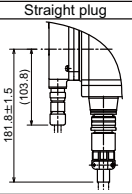
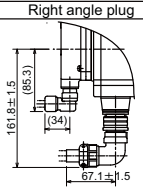
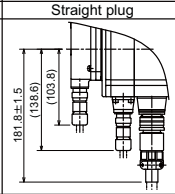
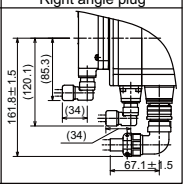


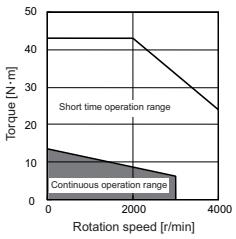
HP-H224BT-A51,-A74N



A48				A51/A74N			
Without brake		With brake		Without brake		With brake	
Straight plug	Right angle plug	Straight plug	Right angle plug	Straight plug	Right angle plug	Straight plug	Right angle plug
							

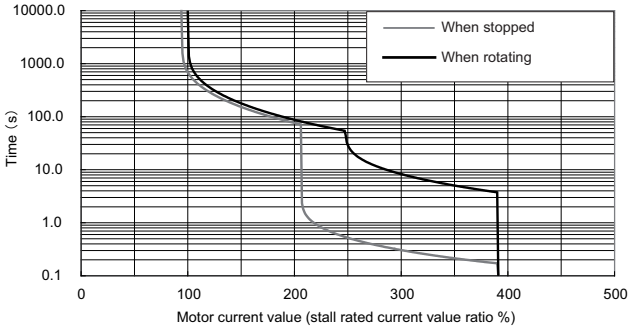
Stall torque	Rated rotation speed	Servo motor type	Explanation of type		
13.7N・m	3000r/min	HP-H204 ☐ S-xxx (1) (2)	(1) Magnetic brake	B	with brake
				None	without brake
			(2) Encoder	XXX	Type

Torque characteristics



Servo overload protection characteristics

DH series

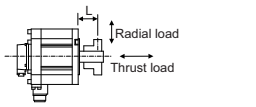


Specifications

Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-DH-V1-40
	2-axis type	MDS-DH-V2-4020 (L) MDS-DH-V2-4040 (L,M) MDS-DH-V2-8040 (M)
	Regenerative resistor type	-
Continuous characteristics	Rated output[kW]	2.0
	Rated current[A]	4.1
	Rated torque[N・m]	6.4
	Stall current[A]	7.3
	Stall torque[N・m]	13.7
Maximum momentary output (For power supply selection)[kW]		11.0
Rated rotation speed[r/min]		3000
Maximum rotation speed[r/min]		4000
Maximum current[A]		28.5
Maximum torque[N・m]		43.0
Power rate at continuous rated torque[kW/s]		14.0
Max. deceleration torque of dynamic brake(Tdp)[N・m]		28.04
Motor inertia[$\times 10^{-4}$ kg•m^2]		29.0
(Brake inertia)[$\times 10^{-4}$ kg•m^2]		34.5
Maximum motor shaft conversion load inertia ratio	High-speed, high-accuracy machine[$\times 10^{-4}$ kg•m^2]	87.0
	General machine tool (interpolation axis)[$\times 10^{-4}$ kg•m^2]	145.0
	Non-interpolation axis [$\times 10^{-4}$ kg•m^2]	290.0
Mass	(Without) [kg]	14.0
	(With brake)[kg]	15.9
Heat-resistant class		155(F)
Degree of protection		IP67 (The shaft-through portion is excluded.)
Quakeproof level[m/s^2] ([G])		X:24.5(2.5), Y:29.4(3)
Axis tolerable load (Taper shaft)	Radial load (*2)[N] ([mm])	-
	Thrust load[N]	-
Axis tolerable load (Straight shaft)	Radial load (*2)[N] ([mm])	1500 (L=52.7)
	Thrust load[N]	490
Oil level (*3)[mm]		25
Absolute position encoder	16,000,000 p/rev	A74N
	1,000,000 p/rev	A51
	260,000 p/rev	A48

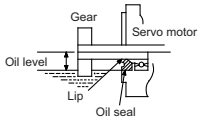
(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)



L : Length from flange installation surface to center of load weight [mm]

(*3)



Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C (with no freezing) Storage: -15°C to +70°C (with no freezing)
Ambient humidity	Operation:80% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Magnetic brake characteristics

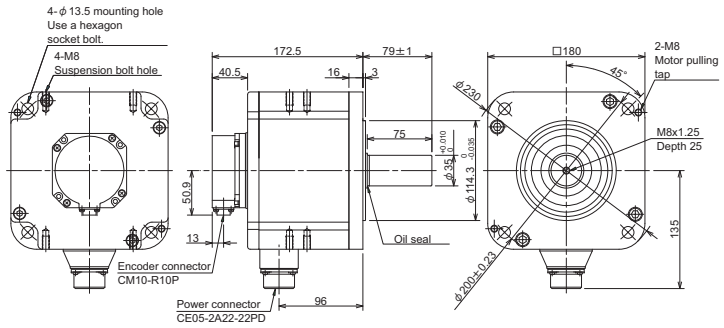
Item	Specifications
Rated voltage	24VDC
Rated current at 20°C[A]	1.0
Static friction torque[N・m]	12
Release delay time (*1)[s]	0.1
Braking delay time (DC OFF) (*1)[s]	0.1
Brake life (*2)[times]	20,000

(*1) This is the representative value for the initial attraction gap at 20°C.

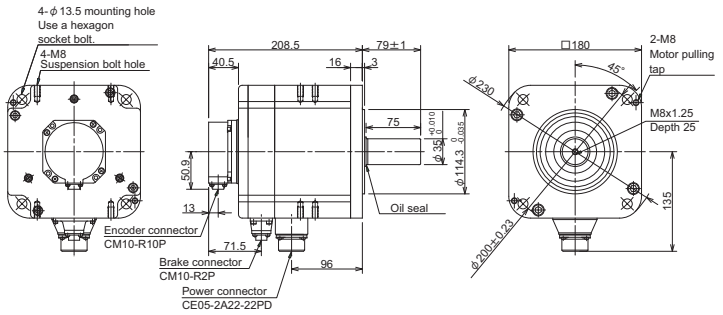
(*2) The brake gap will widen through brake lining wear caused by braking. However, the gap cannot be adjusted. Thus, the brake life is considered to be reached when adjustments are required.

Outline dimension drawings [Unit : mm]

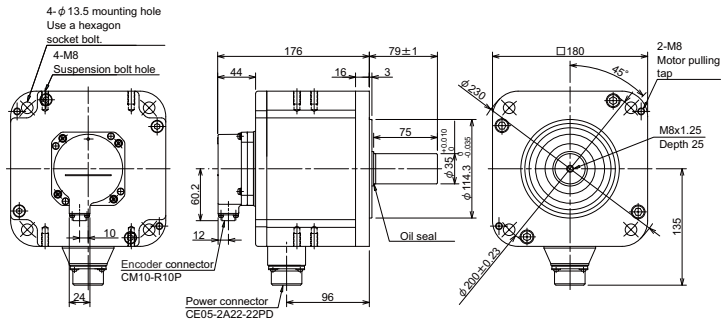
HP-H204S-A48



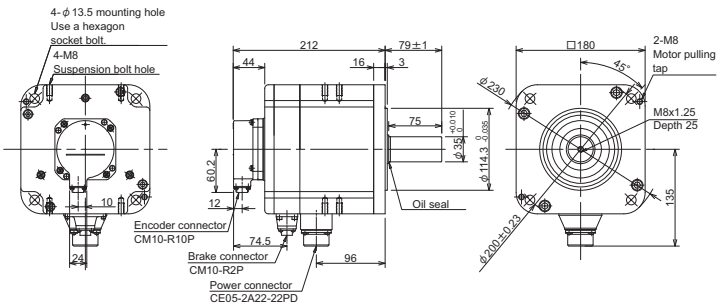
HP-H204BS-A48

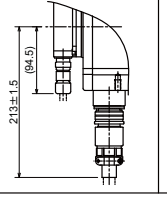
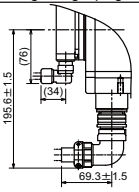
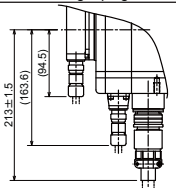
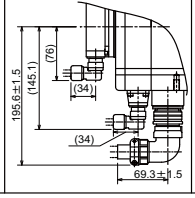
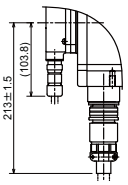
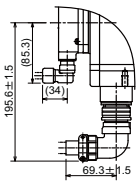
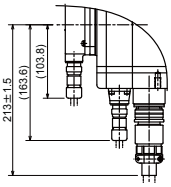
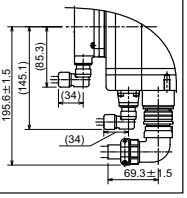


HP-H204S-A51,-A74N



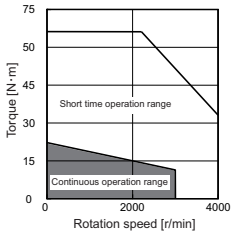
HP-H204BS-A51,-A74N



A48				A51/A74N			
Without brake		With brake		Without brake		With brake	
Straight plug	Right angle plug	Straight plug	Right angle plug	Straight plug	Right angle plug	Straight plug	Right angle plug
							

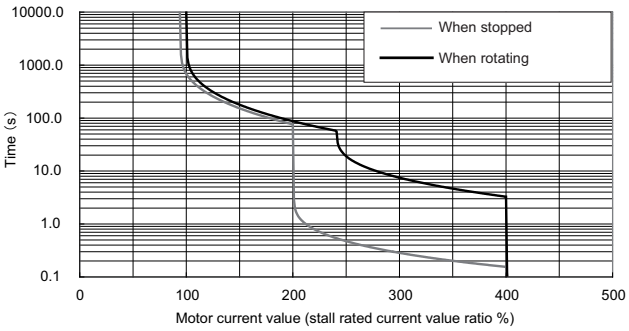
Stall torque	Rated rotation speed	Servo motor type	Explanation of type		
22.5N・m	3000r/min	HP-H354 □ S-xxx (1) (2)	(1) Magnetic brake	B	with brake
				None	without brake
			(2) Encoder	XXX	Type

Torque characteristics



Servo overload protection characteristics

DH series

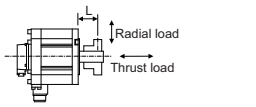


Specifications

Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-DH-V1-80
	2-axis type	MDS-DH-V2-8040 (L) MDS-DH-V2-8080 (L,M) MDS-DH-V2-8080W (L,M)
	Regenerative resistor type	-
Continuous characteristics	Rated output[kW]	3.5
	Rated current[A]	7.4
	Rated torque[N・m]	11.1
	Stall current[A]	14.5
	Stall torque[N・m]	22.5
Maximum momentary output (For power supply selection)[kW]		15.0
Rated rotation speed[r/min]		3000
Maximum rotation speed[r/min]		4000
Maximum current[A]		58.0
Maximum torque[N・m]		66.0
Power rate at continuous rated torque[kW/s]		33.0
Max. deceleration torque of dynamic brake(Tdp)[N・m]		37.93
Motor inertia[$\times 10^{-4}$ kg•m^2]		37.0
(Brake inertia)[$\times 10^{-4}$ kg•m^2]		42.5
Maximum motor shaft conversion load inertia ratio	High-speed, high-accuracy machine[$\times 10^{-4}$ kg•m^2]	111.0
	General machine tool (interpolation axis)[$\times 10^{-4}$ kg•m^2]	185.0
	Non-interpolation axis [$\times 10^{-4}$ kg•m^2]	370.0
Mass	(Without) [kg]	17.0
	(With brake)[kg]	22
Heat-resistant class		155(F)
Degree of protection		IP67 (The shaft-through portion is excluded.)
Quakeproof level[m/s^2] ([G])		X:24.5(2.5), Y:29.4(3)
Axis tolerable load (Taper shaft)	Radial load (*2)[N] ([mm])	-
	Thrust load[N]	-
Axis tolerable load (Straight shaft)	Radial load (*2)[N] ([mm])	1500 (L=52.7)
	Thrust load[N]	490
Oil level (*3)[mm]		25
Absolute position encoder	16,000,000 p/rev	A74N
	1,000,000 p/rev	A51
	260,000 p/rev	A48

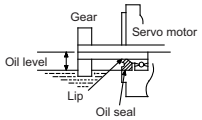
(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)



L : Length from flange installation surface to center of load weight [mm]

(*3)



Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C (with no freezing) Storage: -15°C to +70°C (with no freezing)
Ambient humidity	Operation:80% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Magnetic brake characteristics

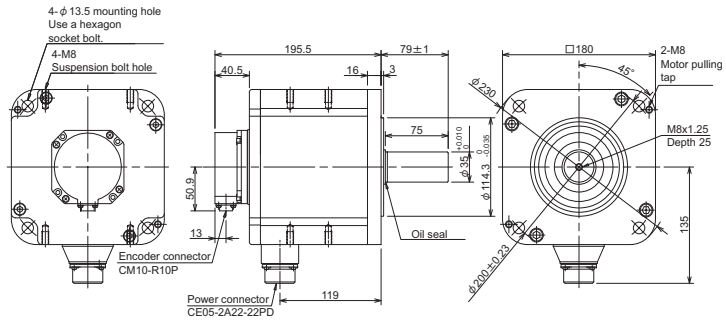
Item	Specifications
Rated voltage	24VDC
Rated current at 20°C[A]	1.4
Static friction torque[N・m]	32
Release delay time (*1)[s]	0.12
Braking delay time (DC OFF) (*1)[s]	0.1
Brake life (*2)[times]	20,000

(*1) This is the representative value for the initial attraction gap at 20°C.

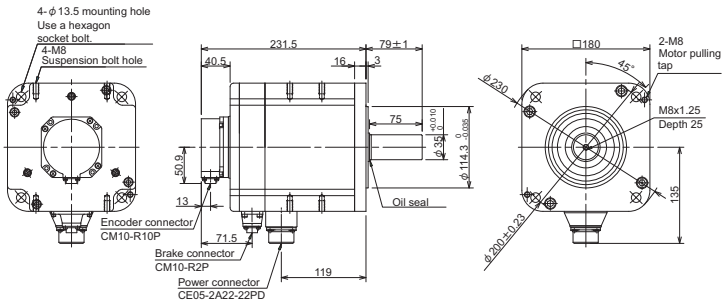
(*2) The brake gap will widen through brake lining wear caused by braking. However, the gap cannot be adjusted. Thus, the brake life is considered to be reached when adjustments are required.

Outline dimension drawings [Unit : mm]

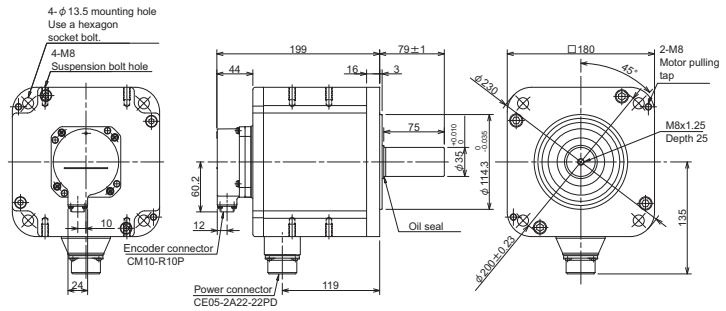
HP-H354S-A48



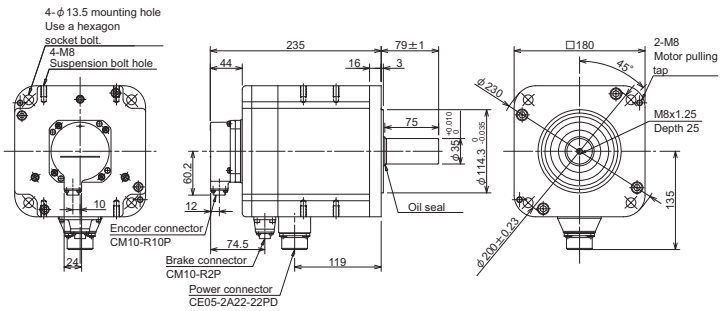
HP-H354BS-A48

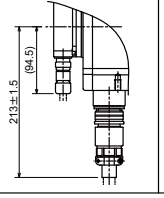
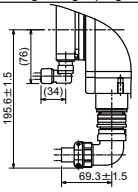
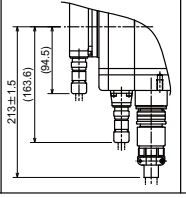
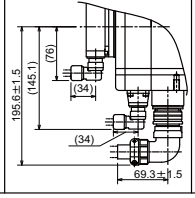
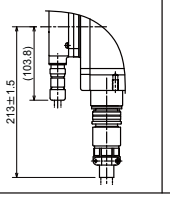
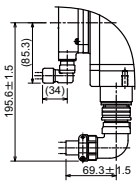
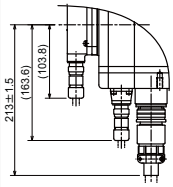
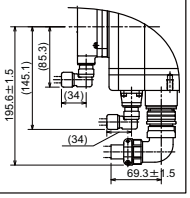


HP-H354S-A51,-A74N



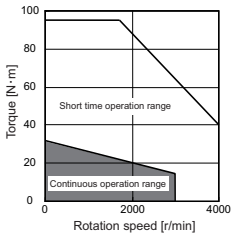
HP-H354BS-A51,-A74N



A48				A51/A74N			
Without brake		With brake		Without brake		With brake	
Straight plug	Right angle plug	Straight plug	Right angle plug	Straight plug	Right angle plug	Straight plug	Right angle plug
							

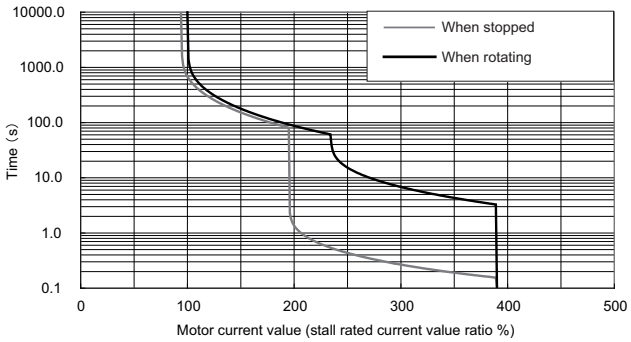
Stall torque	Rated rotation speed	Servo motor type	Explanation of type		
31.9N・m	3000r/min	HP-H454 □ S-xxx (1) (2)	(1) Magnetic brake	B	with brake
				None	without brake
			(2) Encoder	XXX	Type

Torque characteristics



Servo overload protection characteristics

DH series

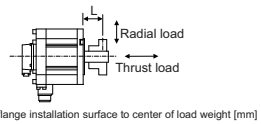


Specifications

Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-DH-V1-80
	2-axis type	MDS-DH-V2-8040 (L) MDS-DH-V2-8080 (L,M) MDS-DH-V2-8080W (L,M)
	Regenerative resistor type	-
Continuous characteristics	Rated output[kW]	4.5
	Rated current[A]	7.6
	Rated torque[N・m]	14.3
	Stall current[A]	14.9
	Stall torque[N・m]	31.9
Maximum momentary output (For power supply selection)[kW]		21.0
Rated rotation speed[r/min]		3000
Maximum rotation speed[r/min]		4000
Maximum current[A]		58.0
Maximum torque[N・m]		95.0
Power rate at continuous rated torque[kW/s]		36.0
Max. deceleration torque of dynamic brake(Tdp)[N・m]		60.58
Motor inertia[$\times 10^{-4}$ kg•m^2]		55.0
(Brake inertia)[$\times 10^{-4}$ kg•m^2]		60.5
Maximum motor shaft conversion load inertia ratio	High-speed, high-accuracy machine[$\times 10^{-4}$ kg•m^2]	165.0
	General machine tool (interpolation axis)[$\times 10^{-4}$ kg•m^2]	275.0
	Non-interpolation axis [$\times 10^{-4}$ kg•m^2]	550.0
Mass	(Without) [kg]	21.0
	(With brake)[kg]	26
Heat-resistant class		155(F)
Degree of protection		IP67 (The shaft-through portion is excluded.)
Quakeproof level[m/s^2] ([G])		X:24.5(2.5), Y:29.4(3)
Axis tolerable load (Taper shaft)	Radial load (*2)[N] ([mm])	-
	Thrust load[N]	-
Axis tolerable load (Straight shaft)	Radial load (*2)[N] ([mm])	1500 (L=52.7)
	Thrust load[N]	490
Oil level (*3)[mm]		25
Absolute position encoder	16,000,000 p/rev	A74N
	1,000,000 p/rev	A51
	260,000 p/rev	A48

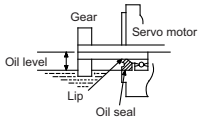
(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)



L : Length from flange installation surface to center of load weight [mm]

(*3)



Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C (with no freezing) Storage: -15°C to +70°C (with no freezing)
Ambient humidity	Operation:80% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Magnetic brake characteristics

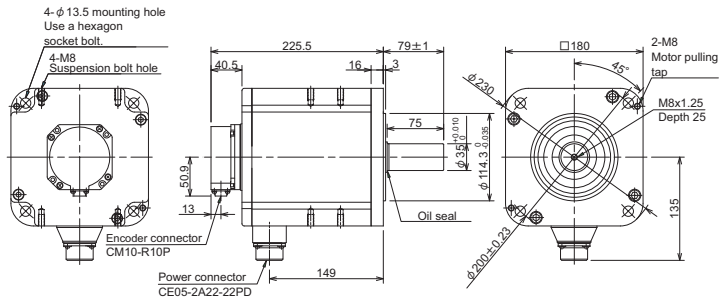
Item	Specifications
Rated voltage	24VDC
Rated current at 20°C[A]	1.4
Static friction torque[N・m]	32
Release delay time (*1)[s]	0.12
Braking delay time (DC OFF) (*1)[s]	0.1
Brake life (*2)[times]	20,000

(*1) This is the representative value for the initial attraction gap at 20°C.

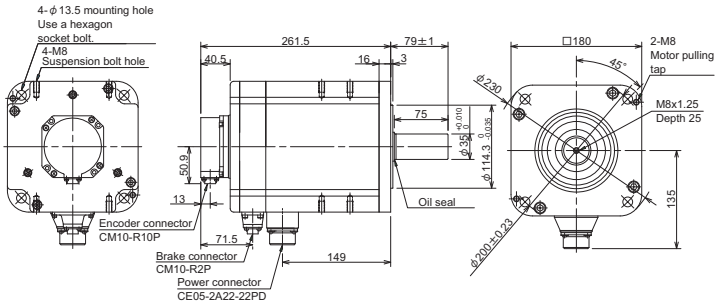
(*2) The brake gap will widen through brake lining wear caused by braking. However, the gap cannot be adjusted. Thus, the brake life is considered to be reached when adjustments are required.

Outline dimension drawings [Unit : mm]

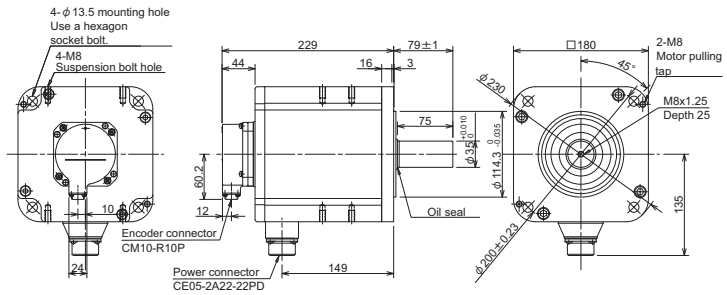
HP-H454S-A48



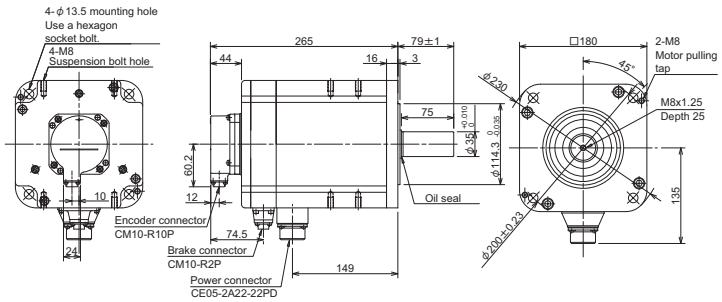
HP-H454BS-A48

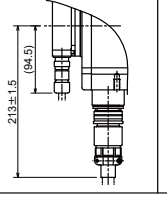
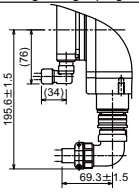
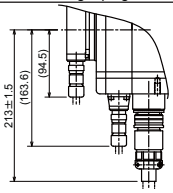
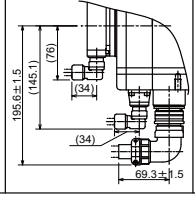
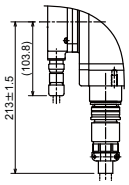
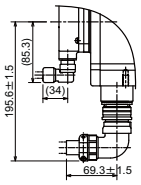
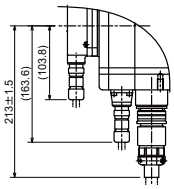
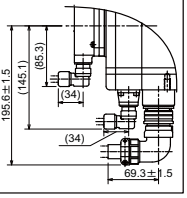


HP-H454S-A51,-A74N



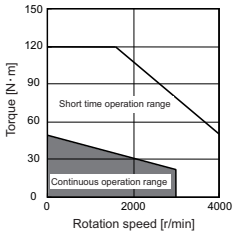
HP-H454BS-A51,-A74N



A48				A51/A74N			
Without brake		With brake		Without brake		With brake	
Straight plug	Right angle plug	Straight plug	Right angle plug	Straight plug	Right angle plug	Straight plug	Right angle plug
							

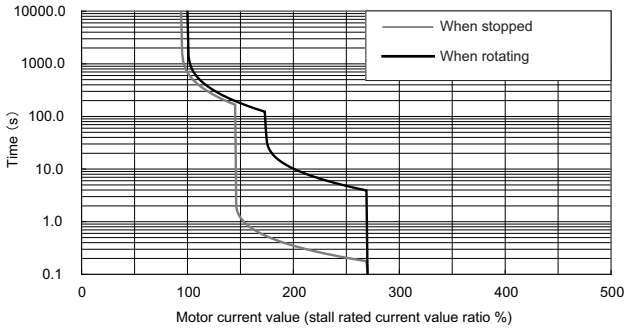
Stall torque	Rated rotation speed	Servo motor type	Explanation of type		
49.0N・m	3000r/min	HP-H704 ☐ S-xxx (1) (2)	(1) Magnetic brake	B	with brake
				None	without brake
			(2) Encoder	XXX	Type

Torque characteristics



Servo overload protection characteristics

DH series

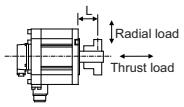


Specifications

Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-DH-V1-80W
	2-axis type	MDS-DH-V2-8080W (L,M)
	Regenerative resistor type	-
Continuous characteristics	Rated output[kW]	7.0
	Rated current[A]	10.6
	Rated torque[N・m]	22.3
	Stall current[A]	20.1
	Stall torque[N・m]	49.0
Maximum momentary output (For power supply selection)[kW]		27.0
Rated rotation speed[r/min]		3000
Maximum rotation speed[r/min]		4000
Maximum current[A]		58.0
Maximum torque[N・m]		120.0
Power rate at continuous rated torque[kW/s]		59.0
Max. deceleration torque of dynamic brake(Tdp)[N・m]		95.47
Motor inertia[$\times 10^{-4}$ kg•m^2]		82.0
(Brake inertia)[$\times 10^{-4}$ kg•m^2]		87.5
Maximum motor shaft conversion load inertia ratio	High-speed, high-accuracy machine[$\times 10^{-4}$ kg•m^2]	246.0
	General machine tool (interpolation axis)[$\times 10^{-4}$ kg•m^2]	410.0
	Non-interpolation axis [$\times 10^{-4}$ kg•m^2]	820.0
Mass	(Without) [kg]	37.0
	(With brake)[kg]	43
Heat-resistant class		155(F)
Degree of protection		IP67 (The shaft-through portion is excluded.)
Quakeproof level[m/s^2] ([G])		X:24.5(2.5), Y:29.4(3)
Axis tolerable load (Taper shaft)	Radial load (*2)[N] ([mm])	-
	Thrust load[N]	-
Axis tolerable load (Straight shaft)	Radial load (*2)[N] ([mm])	1300 (L=52.7)
	Thrust load[N]	590
Oil level (*3)[mm]		25
Absolute position encoder	16,000,000 p/rev	A74N
	1,000,000 p/rev	A51
	260,000 p/rev	A48

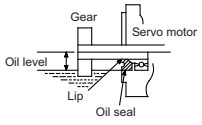
(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)



L : Length from flange installation surface to center of load weight [mm]

(*3)



Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C (with no freezing) Storage: -15°C to +70°C (with no freezing)
Ambient humidity	Operation:80% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Magnetic brake characteristics

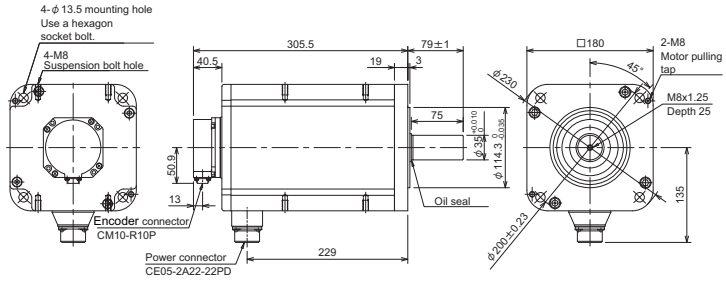
Item	Specifications
Rated voltage	24VDC
Rated current at 20°C[A]	1.4
Static friction torque[N・m]	54.9
Release delay time (*1)[s]	0.3
Braking delay time (DC OFF) (*1)[s]	0.1
Brake life (*2)[times]	20,000

(*1) This is the representative value for the initial attraction gap at 20°C.

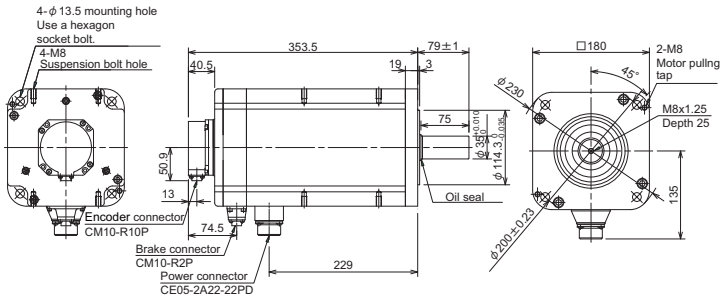
(*2) The brake gap will widen through brake lining wear caused by braking. However, the gap cannot be adjusted. Thus, the brake life is considered to be reached when adjustments are required.

Outline dimension drawings [Unit : mm]

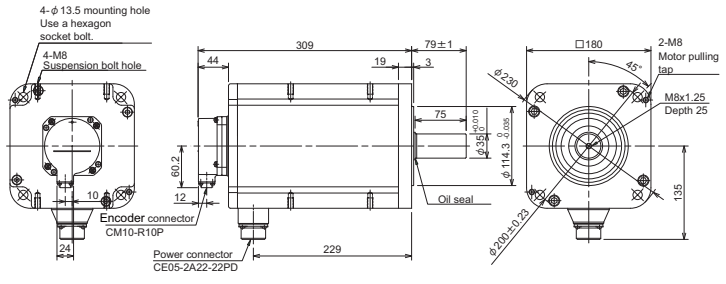
HP-H704S-A48



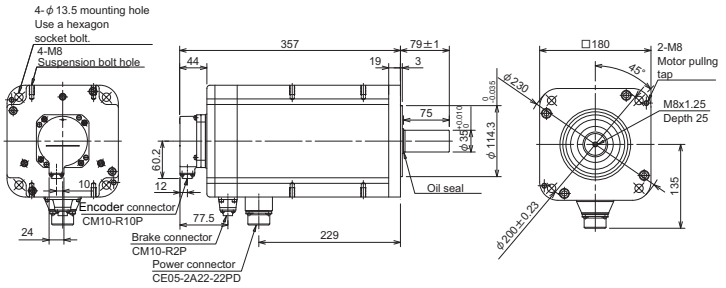
HP-H704BS-A48

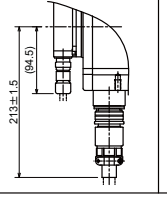
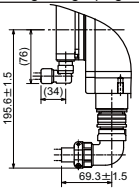
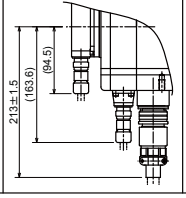
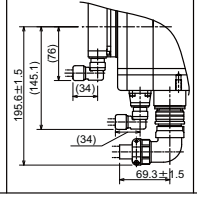
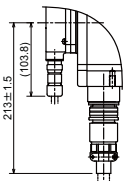
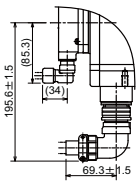
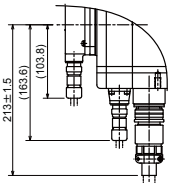
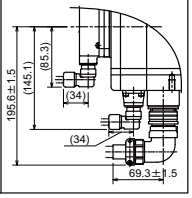


HP-H704S-A51,-A74N



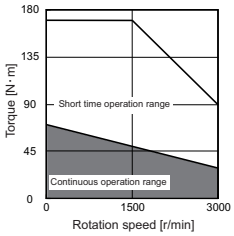
HP-H704BS-A51,-A74N



A48				A51/A74N			
Without brake		With brake		Without brake		With brake	
Straight plug	Right angle plug	Straight plug	Right angle plug	Straight plug	Right angle plug	Straight plug	Right angle plug
							

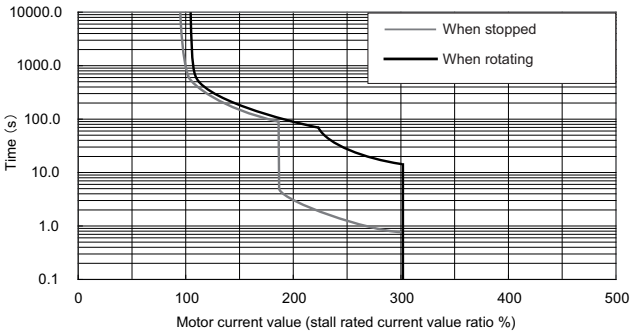
Stall torque	Rated rotation speed	Servo motor type	Explanation of type		
		(1) (2)	(1) Magnetic brake	B	with brake
70.0N・m	3000r/min	HP-H903 □ S-xxx		None	without brake
			(2) Encoder	XXX	Type

Torque characteristics



Servo overload protection characteristics

DH series

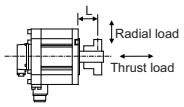


Specifications

Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-DH-V1-160
	2-axis type	-
	Regenerative resistor type	-
Continuous characteristics	Rated output[kW]	9.0
	Rated current[A]	12.9
	Rated torque[N・m]	28.7
	Stall current[A]	32.0
	Stall torque[N・m]	70.0
Maximum momentary output (For power supply selection)[kW]		33.0
Rated rotation speed[r/min]		3000
Maximum rotation speed[r/min]		3000
Maximum current[A]		86.0
Maximum torque[N・m]		170.0
Power rate at continuous rated torque[kW/s]		52.0
Max. deceleration torque of dynamic brake(Tdp)[N・m]		100.47
Motor inertia[$\times 10^{-4}$ kg•m^2]		163.0
(Brake inertia)[$\times 10^{-4}$ kg•m^2]		187.0
Maximum motor shaft conversion load inertia ratio	High-speed, high-accuracy machine[$\times 10^{-4}$ kg•m^2]	675.0
	General machine tool (interpolation axis)[$\times 10^{-4}$ kg•m^2]	1125.0
	Non-interpolation axis [$\times 10^{-4}$ kg•m^2]	2250.0
Mass	(Without) [kg]	51.0
	(With brake)[kg]	61.4
Heat-resistant class		155(F)
Degree of protection		IP67 (The shaft-through portion is excluded.)
Quakeproof level[m/s^2] ([G])		X:9.8(1), Y:9.8(1)
Axis tolerable load (Taper shaft)	Radial load (*2)[N] ([mm])	-
	Thrust load[N]	-
Axis tolerable load (Straight shaft)	Radial load (*2)[N] ([mm])	2500 (L=52.7)
	Thrust load[N]	1100
Oil level (*3)[mm]		30
Absolute position encoder	16,000,000 p/rev	A74N
	1,000,000 p/rev	A51
	260,000 p/rev	A48

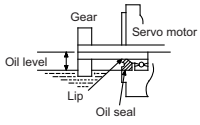
(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)



L : Length from flange installation surface to center of load weight [mm]

(*3)



Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C (with no freezing) Storage: -15°C to +70°C (with no freezing)
Ambient humidity	Operation:80% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Magnetic brake characteristics

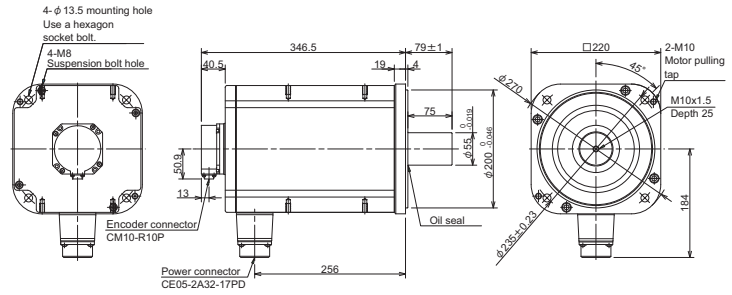
Item	Specifications
Rated voltage	24VDC
Rated current at 20°C[A]	1.7
Static friction torque[N・m]	90
Release delay time (*1)[s]	0.3
Braking delay time (DC OFF) (*1)[s]	0.1
Brake life (*2)[times]	20,000

(*1) This is the representative value for the initial attraction gap at 20°C.

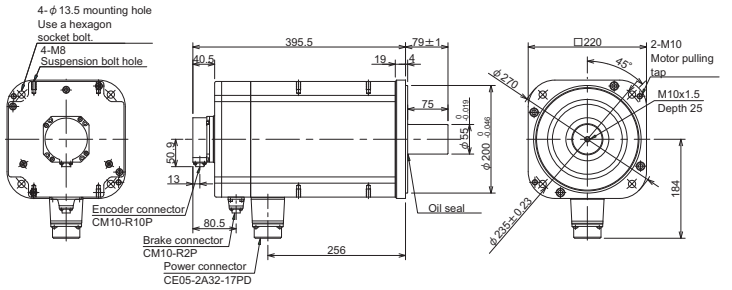
(*2) The brake gap will widen through brake lining wear caused by braking. However, the gap cannot be adjusted. Thus, the brake life is considered to be reached when adjustments are required.

Outline dimension drawings [Unit : mm]

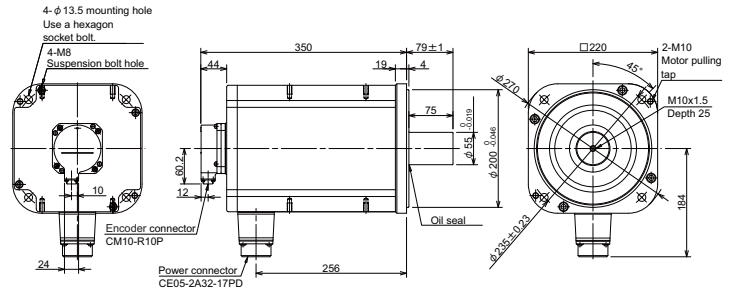
HP-H903S-A48



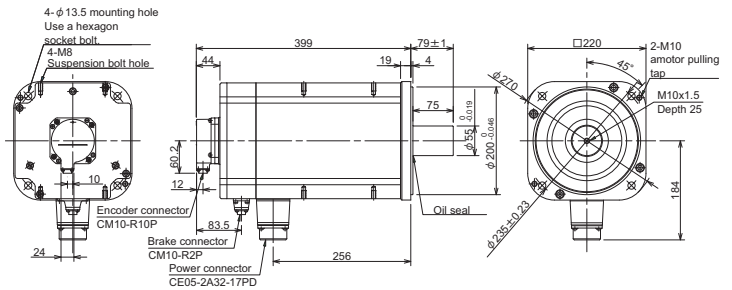
HP-H903BS-A48

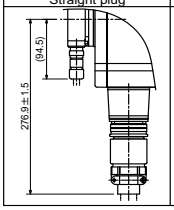
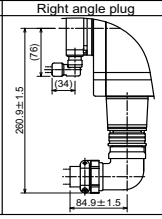
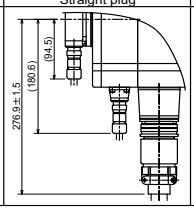
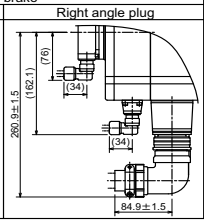
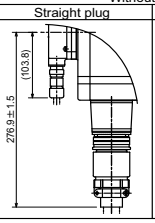
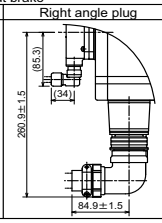
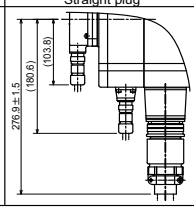
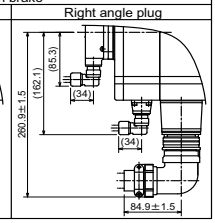


HP-H903S-A51,-A74N



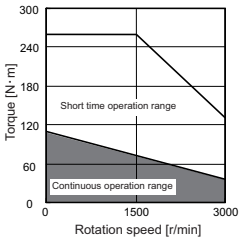
HP-H903BS-A51,-A74N



A48				A51/A74N			
Without brake		With brake		Without brake		With brake	
Straight plug	Right angle plug	Straight plug	Right angle plug	Straight plug	Right angle plug	Straight plug	Right angle plug
							

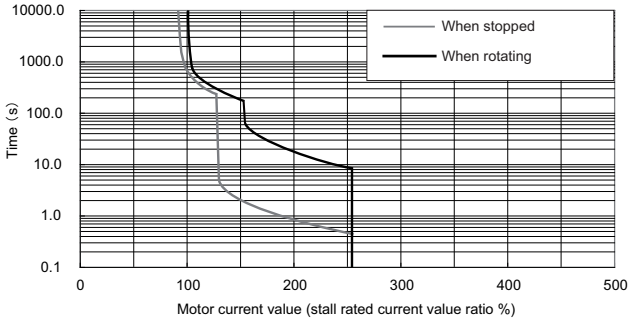
Stall torque	Rated rotation speed	Servo motor type	Explanation of type		
110.0N・m	3000r/min	HP-H1103 ☐ S-xxx (1) (2)	(1) Magnetic brake	B	with brake
				None	without brake
			(2) Encoder	XXX	Type

Torque characteristics



Servo overload protection characteristics

DH series

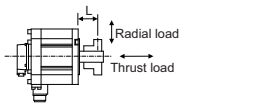


Specifications

Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-DH-V1-160W
	2-axis type	-
	Regenerative resistor type	-
Continuous characteristics	Rated output[kW]	11.0
	Rated current[A]	15.0
	Rated torque[N・m]	35.0
	Stall current[A]	46.0
	Stall torque[N・m]	110.0
Maximum momentary output (For power supply selection)[kW]		50.0
Rated rotation speed[r/min]		3000
Maximum rotation speed[r/min]		3000
Maximum current[A]		106.0
Maximum torque[N・m]		260.0
Power rate at continuous rated torque[kW/s]		48.0
Max. deceleration torque of dynamic brake(Tdp)[N・m]		170.39
Motor inertia[$\times 10^{-4}$ kg•m^2]		255.0
(Brake inertia)[$\times 10^{-4}$ kg•m^2]		279.0
Maximum motor shaft conversion load inertia ratio	High-speed, high-accuracy machine[$\times 10^{-4}$ kg•m^2]	900.0
	General machine tool (interpolation axis)[$\times 10^{-4}$ kg•m^2]	1500.0
	Non-interpolation axis [$\times 10^{-4}$ kg•m^2]	3000.0
Mass	(Without) [kg]	74.0
	(With brake)[kg]	84.4
Heat-resistant class		155(F)
Degree of protection		IP67 (The shaft-through portion is excluded.)
Quakeproof level[m/s^2] ([G])		X:9.8(1), Y:9.8(1)
Axis tolerable load (Taper shaft)	Radial load (*2)[N] ([mm])	-
	Thrust load[N]	-
Axis tolerable load (Straight shaft)	Radial load (*2)[N] ([mm])	2700 (L=52.7)
	Thrust load[N]	1500
Oil level (*3)[mm]		30
Absolute position encoder	16,000,000 p/rev	A74N
	1,000,000 p/rev	A51
	260,000 p/rev	A48

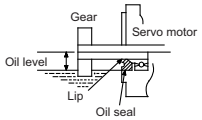
(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)



L : Length from flange installation surface to center of load weight [mm]

(*3)



Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C (with no freezing) Storage: -15°C to +70°C (with no freezing)
Ambient humidity	Operation:80% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Magnetic brake characteristics

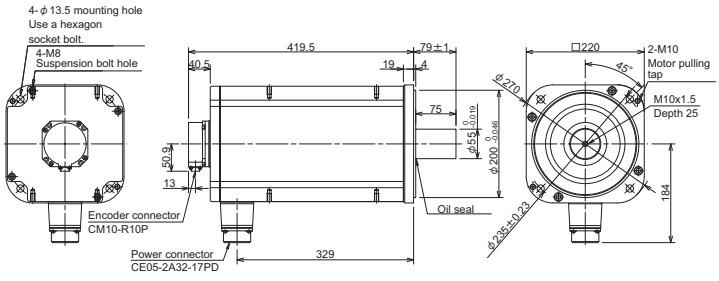
Item	Specifications
Rated voltage	24VDC
Rated current at 20°C[A]	1.7
Static friction torque[N・m]	90
Release delay time (*1)[s]	0.3
Braking delay time (DC OFF) (*1)[s]	0.1
Brake life (*2)[times]	20,000

(*1) This is the representative value for the initial attraction gap at 20°C.

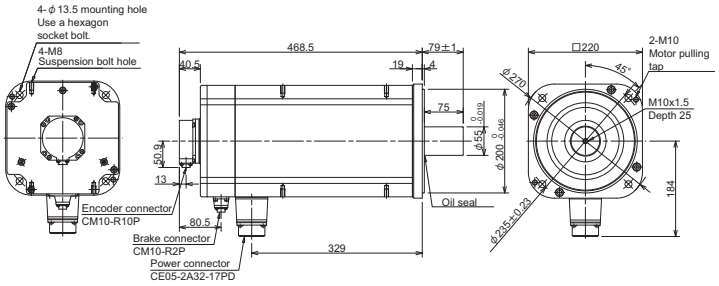
(*2) The brake gap will widen through brake lining wear caused by braking. However, the gap cannot be adjusted. Thus, the brake life is considered to be reached when adjustments are required.

Outline dimension drawings [Unit : mm]

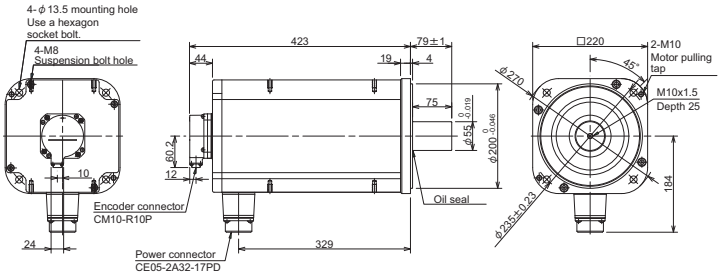
HP-H1103S-A48



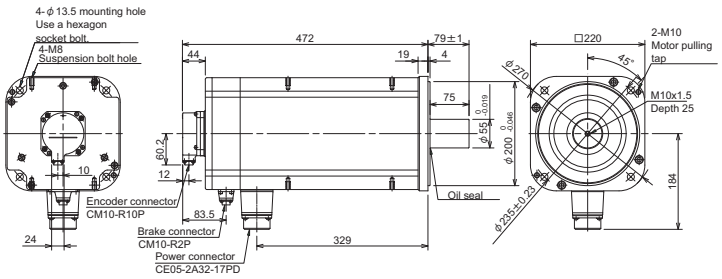
HP-H1103BS-A48

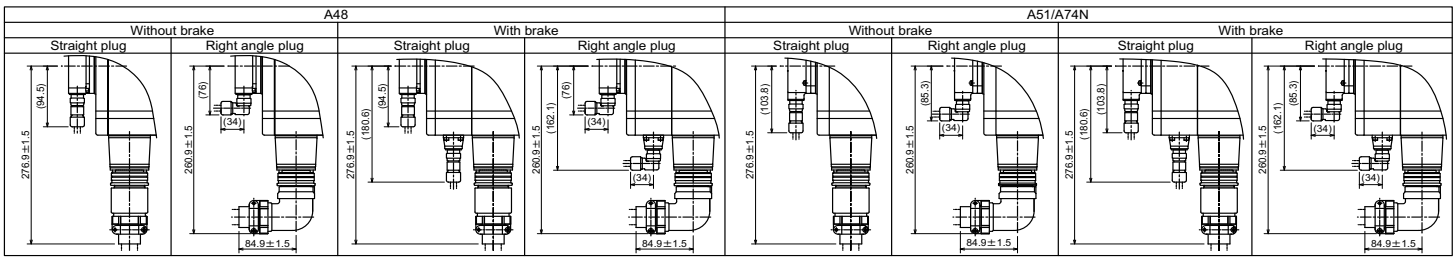


HP-H1103S-A51,-A74N



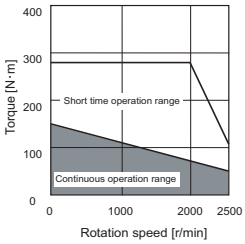
HP-H1103BS-A51,-A74N





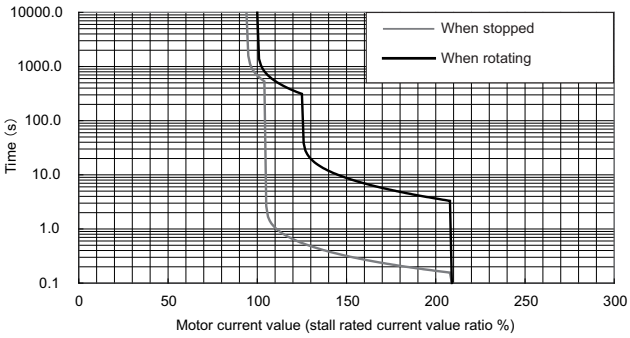
Stall torque	Rated rotation speed	Servo motor type	Explanation of type		
		(1)	(1) Encoder	XXX	Type
146.0N・m	2000r/min	HC-H1502S-S10 -xxx			

Torque characteristics



Servo overload protection characteristics

DH series

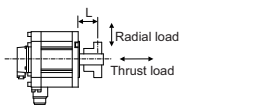


Specifications

Item		Specifications
Compatible drive unit (*1)	1-axis type	MDS-DH-V1-200
	2-axis type	-
	Regenerative resistor type	-
Continuous characteristics	Rated output[kW]	15.0
	Rated current[A]	39
	Rated torque[N・m]	71.6
	Stall current[A]	77
	Stall torque[N・m]	146.0
Maximum momentary output (For power supply selection)[kW]		59.0
Rated rotation speed[r/min]		2000
Maximum rotation speed[r/min]		2500
Maximum current[A]		160.0
Maximum torque[N・m]		280.0
Power rate at continuous rated torque[kW/s]		104.5
Max. deceleration torque of dynamic brake(Tdp)[N・m]		237.67
Motor inertia[$\times10^{-4}$ kg•m^2]		550
(Brake inertia)[$\times10^{-4}$ kg•m^2]		-
Maximum motor shaft conversion load inertia ratio	High-speed, high-accuracy machine[$\times10^{-4}$ kg•m^2]	1650
	General machine tool (interpolation axis)[$\times10^{-4}$ kg•m^2]	2750
	Non-interpolation axis [$\times10^{-4}$ kg•m^2]	5500
Mass	(Without) [kg]	160
	(With brake)[kg]	-
Heat-resistant class		155(F)
Degree of protection		IP44 (The shaft-through portion is excluded.)
Quakeproof level[m/s^2] ([G])		X:9.8(1), Y:9.8(1)
Axis tolerable load (Taper shaft)	Radial load (*2)[N] ([mm])	-
	Thrust load[N]	-
Axis tolerable load (Straight shaft)	Radial load (*2)[N] ([mm])	3234 (L=140)
	Thrust load[N]	1470
Oil level (*3)[mm]		45
Absolute position encoder	16,000,000 p/rev	A74N
	1,000,000 p/rev	A51
	260,000 p/rev	A48

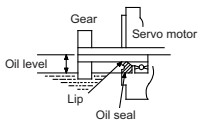
(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)



L : Length from flange installation surface to center of load weight [mm]

(*3)



Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C (with no freezing) Storage: -15°C to +70°C (with no freezing)
Ambient humidity	Operation:80% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation: 1000m or less above sea level Storage: 10000m or less above sea level

Magnetic brake characteristics

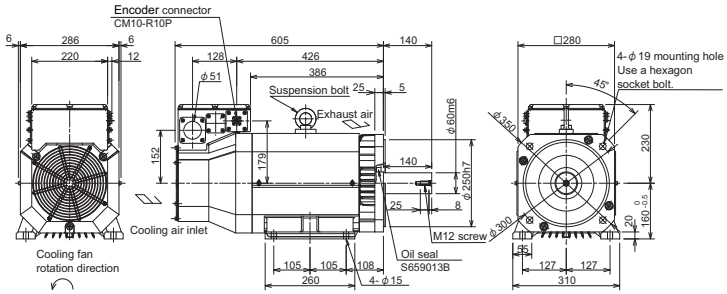
Item	Specifications
Rated voltage	-
Rated current at 20°C[A]	-
Static friction torque[N・m]	-
Release delay time (*1)[s]	-
Braking delay time (DC OFF) (*1)[s]	-
Brake life (*2)[times]	-

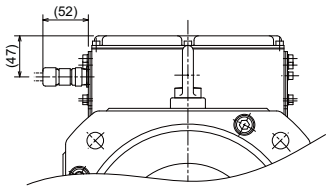
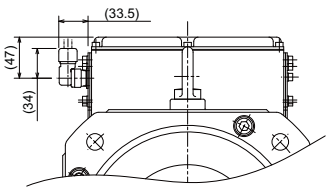
(*1) This is the representative value for the initial attraction gap at 20°C.

(*2) The brake gap will widen through brake lining wear caused by braking. However, the gap cannot be adjusted. Thus, the brake life is considered to be reached when adjustments are required.

Outline dimension drawings [Unit : mm]

HC-H1502S-S10-A48,-A51,-A74N

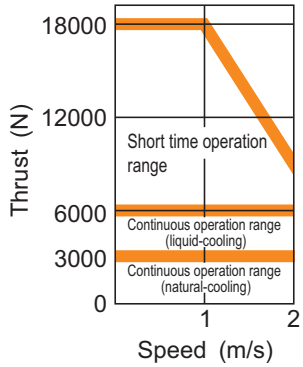


Straight plug	Right angle plug
	

Linear motor

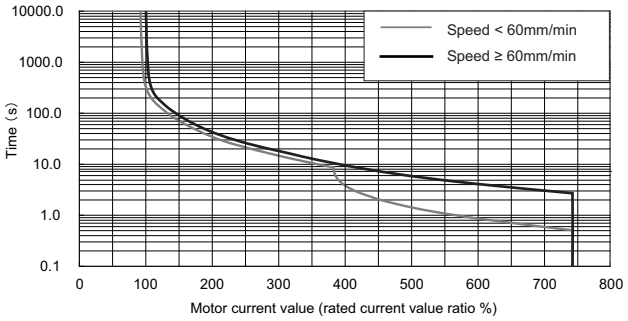
Thrust		Linear servo motor type		Explanation of type	
Rated (natural-cooling)	3000N	Primary side (coil)	LM-FP5H-60M -1WW0		
Rated (liquid-cooling)	6000N	Secondary side (magnet)	(1) LM-FS50 -□-1WW0	(1) Length [mm]	480
Maximum	18000N				576

Thrust Characteristics

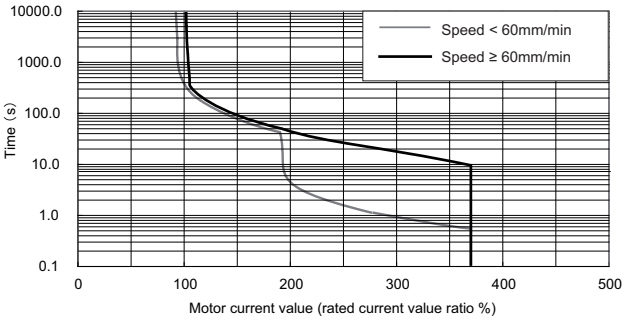


Servo overload protection characteristics

DH series (For natural-cooling)



DH series (For liquid-cooling)



Specifications

Item		Specifications
		Standard
Compatible drive unit (*1)	1-axis type	MDS-DH-V1-200
	2-axis type	-
	3-axis type	-
	Regenerative resistor type	-
Power facility capacity [kVA]		22
Current	Rated (natural-cooling) [Arms]	21.1
	Rated (liquid-cooling) [Arms]	42.2
	Maximum [Arms]	142.0
Cooling method		Natural-cooling, liquid-cooling
Thrust	Rated (natural-cooling) [N]	3000
	Rated (liquid-cooling) [N]	6000
	Maximum [N]	18000
Maximum speed [m/s] (*2)		2.0
Magnetic attraction force [N]		45000
Mass	Primary side [kg]	67
	Secondary side [kg]	20.0 (480mm) 26.0 (576mm)
Recommended load mass ratio		15 times linear servo motor primary side mass maximum
Structure		Open (Degree of protection IP00)

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2) The above value may be limited by the maximum speed of the linear scale.

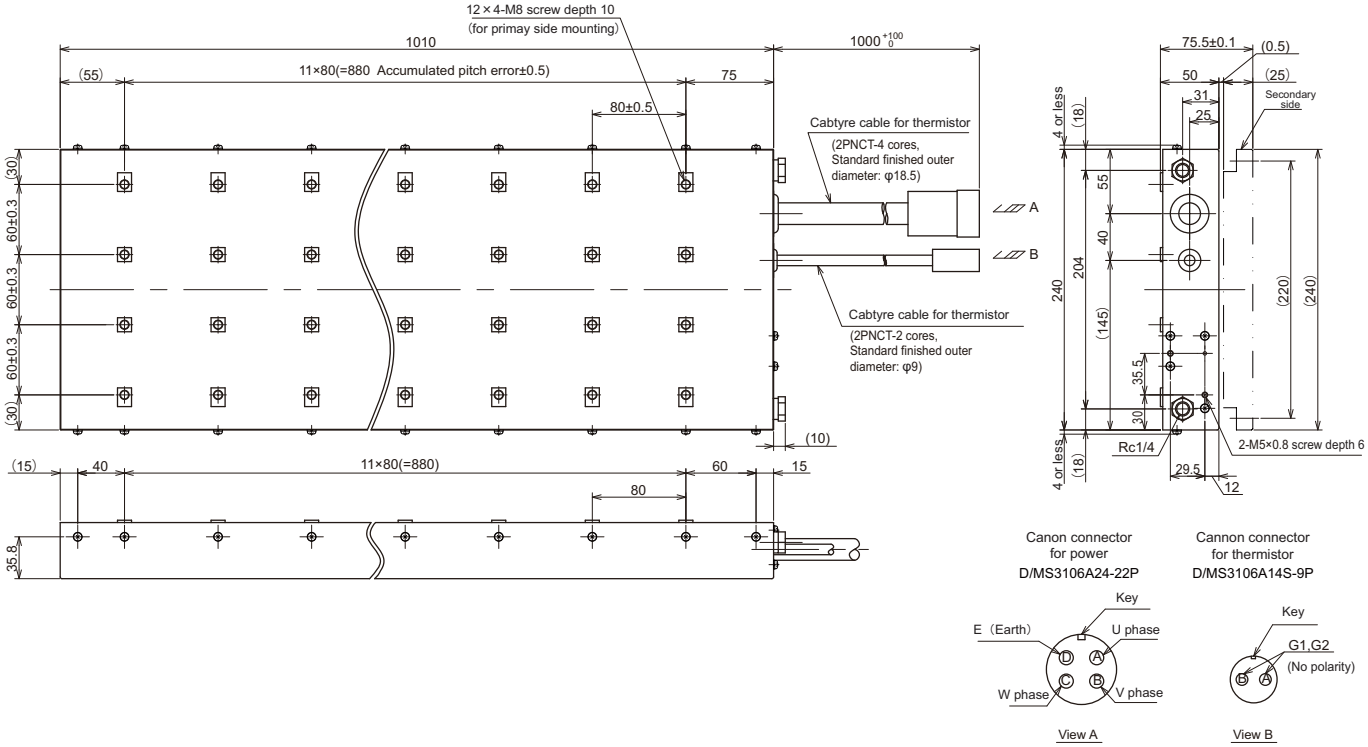
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C (with no freezing) Storage: -15°C to 55°C (with no freezing)
Ambient humidity	Operation: 80%RH or less (with no dew condensation) Storage: 90%RH or less (with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, or dust
Vibration	49m/s ^{2} or less
Altitude	1000 meters or less above sea level

Outline dimension drawings [Unit : mm]

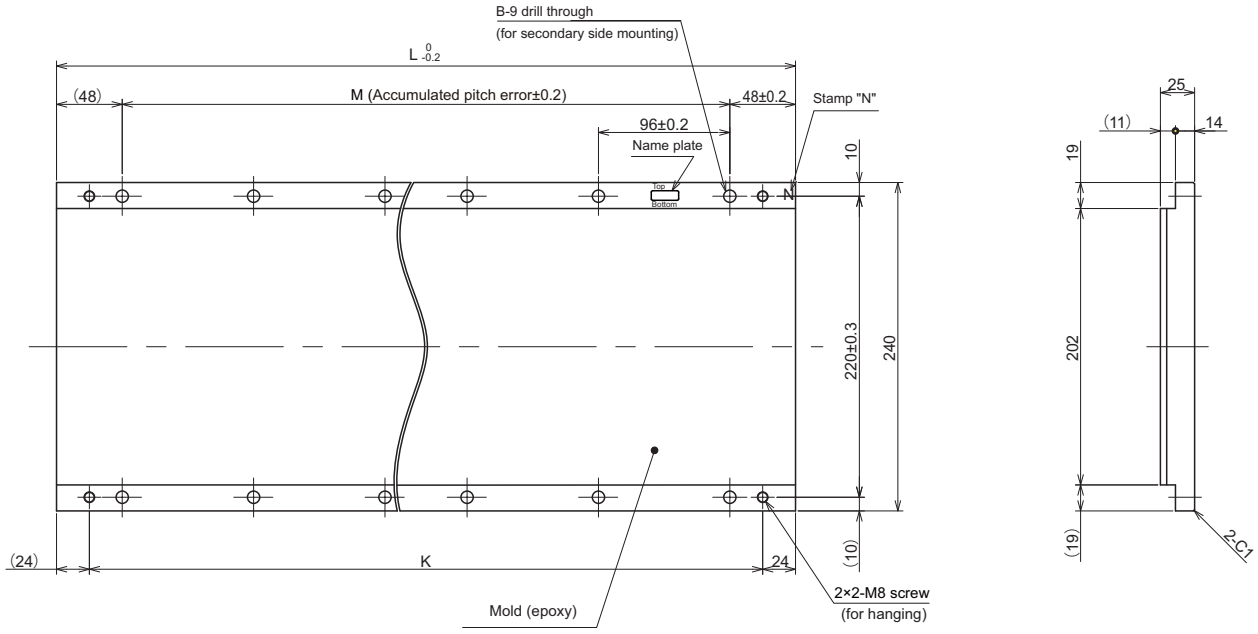
< Primary side >

LM-FP5H-60M-1WW0



< Secondary side >

LM-FS50- □ -1WW0



Model	Variable dimensions			
	L	M	K	B
LM-FS50-480-1WW0	480	4X96(=384)	432	5×2
LM-FS50-576-1WW0	576	5X96(=480)	528	6×2

Spindle motor

Base rotation speed 1500r/min series

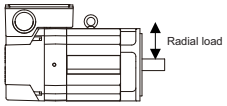
SJ-4-V2.2-03T

Specifications

Item		Specifications
Compatible drive unit (*1)		MDS-DH-SP-20
Output capacity[kW]	Continuous rated output	1.5
	Short time rated output	2.2 (15-minute rating)
	Standard output during acceleration/ deceleration	2.2
	Actual acceleration/deceleration output (*3)	2.6
Base rotation speed[r/min]		1500
Maximum rotation speed[r/min]		10000
Frame No.		A90
Continuous rated torque[N・m]		9.5
GD^2 [kg・m^2]		0.027
Inertia[kg・m^2]		0.00675
Tolerable radial load(*2) [N]		980
Cooling fan	Input voltage	Single-phase 400V
	Maximum power consumption	30W
Degree of protection		IP44
Mass[kg]		25
Heat-resistant class		155(F)

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

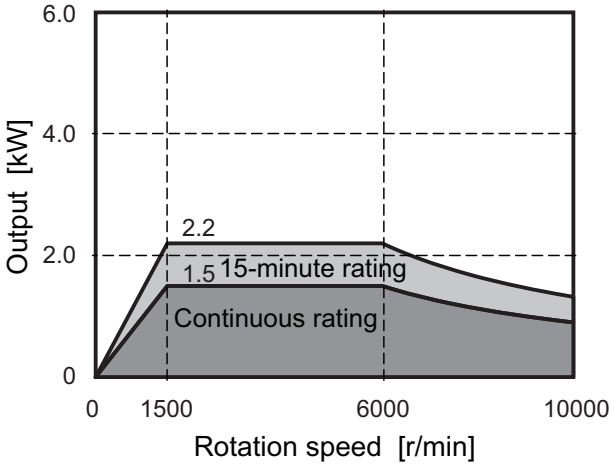
(*2)



(Note) The load point is at the one-half of the shaft length.

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

Output characteristics

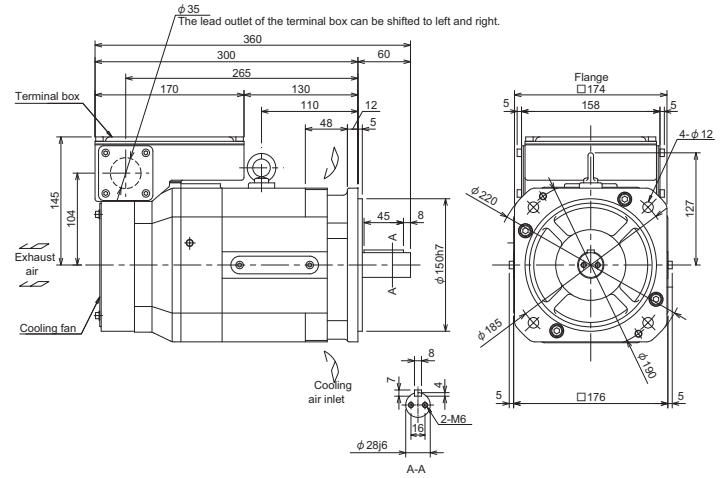


Environmental conditions

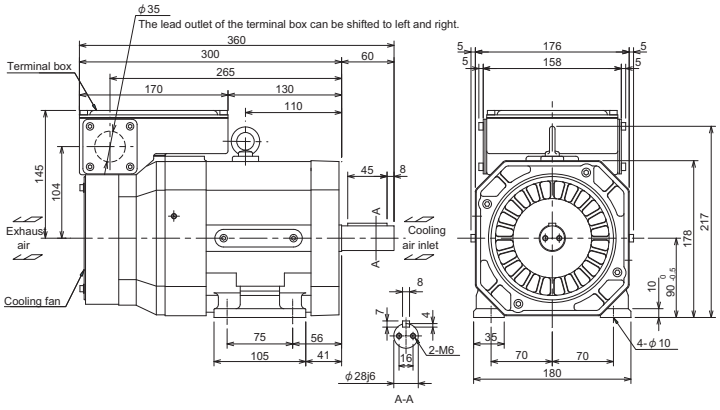
Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Outline dimension drawings [Unit : mm]

SJ-4-V2.2-03T with standard flange



SJ-4-V2.2-03T with standard legs



Base rotation speed 1500r/min series

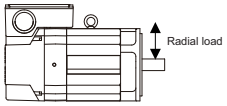
SJ-4-V3.7-03T

Specifications

Item		Specifications
Compatible drive unit (*1)		MDS-DH-SP-20
Output capacity[kW]	Continuous rated output	2.2
	Short time rated output	3.7 (15-minute rating)
	Standard output during acceleration/ deceleration	3.7
	Actual acceleration/deceleration output (*3)	4.4
Base rotation speed[r/min]		1500
Maximum rotation speed[r/min]		10000
Frame No.		B90
Continuous rated torque[N・m]		14.0
GD^2 [kg・m^2]		0.035
Inertia[kg・m^2]		0.00875
Tolerable radial load(*2) [N]		980
Cooling fan	Input voltage	Single-phase 400V
	Maximum power consumption	30W
Degree of protection		IP44
Mass[kg]		30
Heat-resistant class		155(F)

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

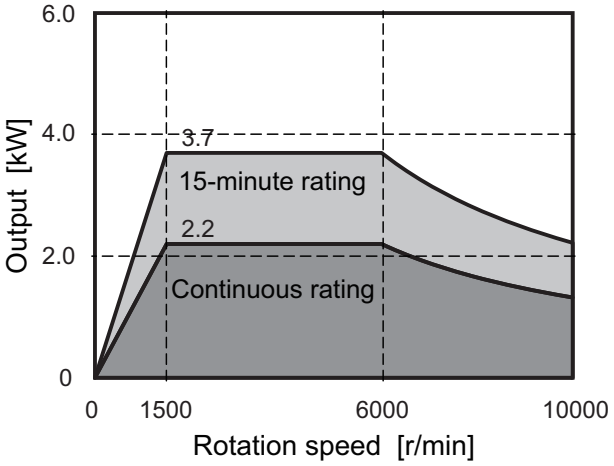
(*2)



(Note) The load point is at the one-half of the shaft length.

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

Output characteristics

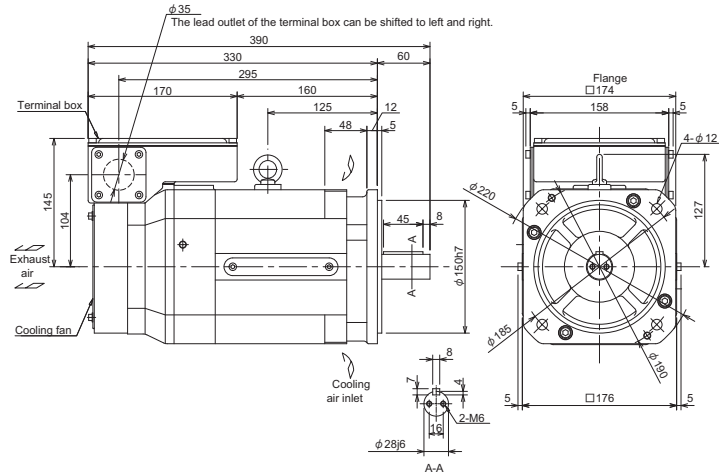


Environmental conditions

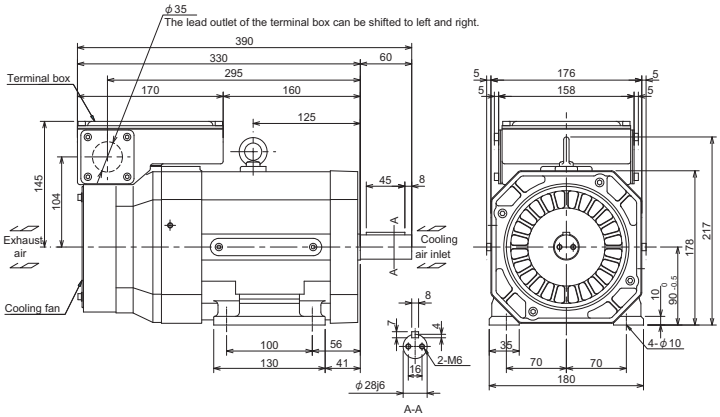
Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Outline dimension drawings [Unit : mm]

SJ-4-V3.7-03T with standard flange



SJ-4-V3.7-03T with standard legs



Base rotation speed 3000r/min series

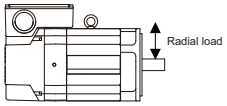
SJ-4-V3.7-05ZT

Specifications

Item		Specifications
Compatible drive unit (*1)		MDS-DH-SP-20
Output capacity[kW]	Continuous rated output	2.2
	Short time rated output	3.7 (15-minute rating)
	Standard output during acceleration/deceleration	3.7
	Actual acceleration/deceleration output (*3)	4.4
Base rotation speed[r/min]		3000
Maximum rotation speed[r/min]		15000
Frame No.		A90
Continuous rated torque[N・m]		7.0
GD^2 [kg・m^2]		0.027
Inertia[kg・m^2]		0.007
Tolerable radial load(*2) [N]		490
Cooling fan	Input voltage	Single-phase 400V
	Maximum power consumption	30W
Degree of protection		IP44
Mass[kg]		25
Heat-resistant class		155(F)

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

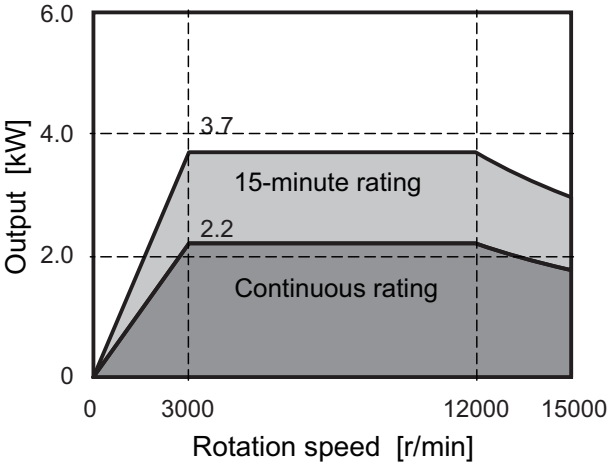
(*2)



(Note) The load point is at the one-half of the shaft length.

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

Output characteristics

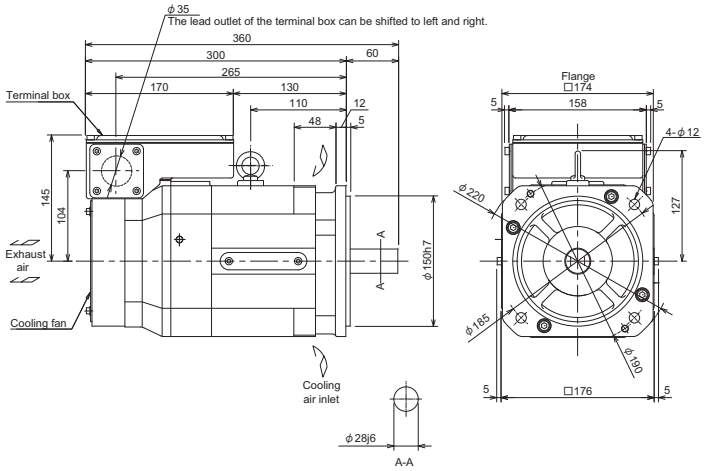


Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Outline dimension drawings [Unit : mm]

SJ-4-V3.7-05ZT with standard flange



Base rotation speed 1500r/min series

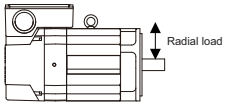
SJ-4-V5.5-07T

Specifications

Item		Specifications
Compatible drive unit (*1)		MDS-DH-SP-40
Output capacity[kW]	Continuous rated output	3.7
	Short time rated output	5.5 (30-minute rating)
	Standard output during acceleration/ deceleration	5.5
	Actual acceleration/deceleration output (*3)	6.6
Base rotation speed[r/min]		1500
Maximum rotation speed[r/min]		8000
Frame No.		D90
Continuous rated torque[N・m]		23.5
GD^2 [kg・m^2]		0.059
Inertia[kg・m^2]		0.0148
Tolerable radial load(*2) [N]		1470
Cooling fan	Input voltage	Single-phase 400V
	Maximum power consumption	35W
Degree of protection		IP44
Mass[kg]		49
Heat-resistant class		155(F)

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

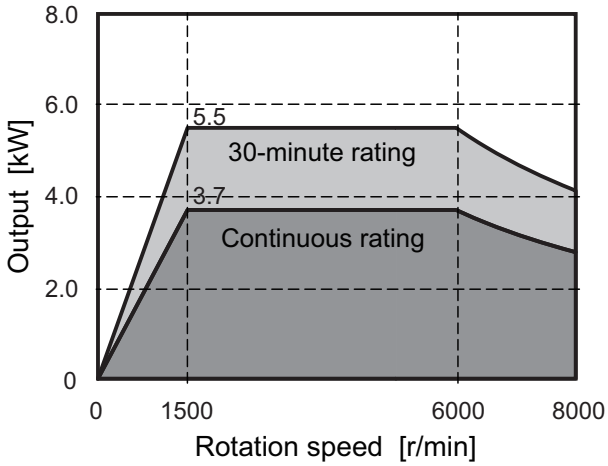
(*2)



(Note) The load point is at the one-half of the shaft length.

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

Output characteristics

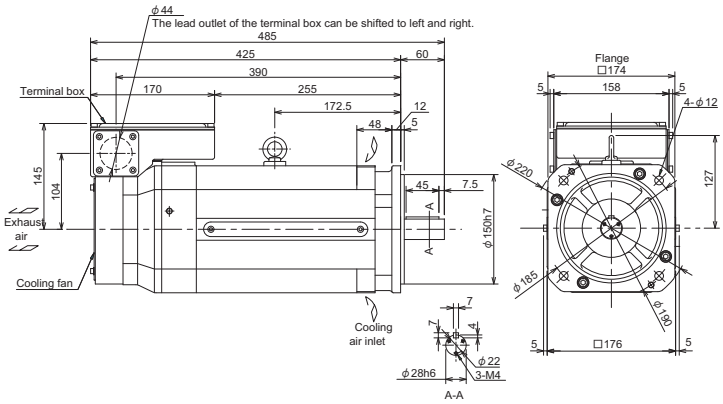


Environmental conditions

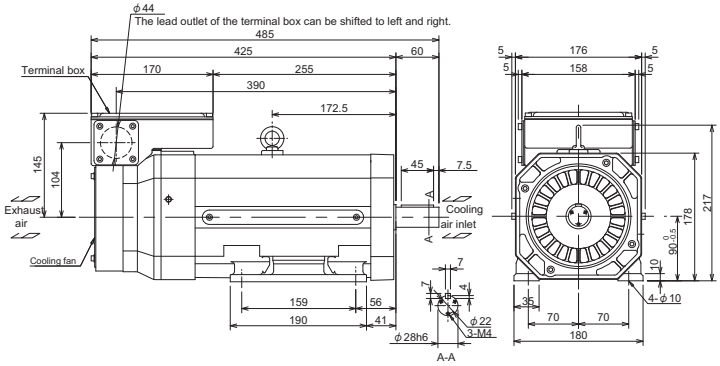
Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Outline dimension drawings [Unit : mm]

SJ-4-V5.5-07T with standard flange



SJ-4-V5.5-07T with standard legs



Base rotation speed 1500r/min series

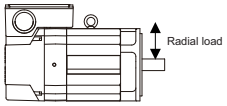
SJ-4-V7.5-12T

Specifications

Item		Specifications
Compatible drive unit (*1)		MDS-DH-SP-40
Output capacity[kW]	Continuous rated output	5.5
	Short time rated output	7.5 (30-minute rating)
	Standard output during acceleration/ deceleration	7.5
	Actual acceleration/deceleration output (*3)	9
Base rotation speed[r/min]		1500
Maximum rotation speed[r/min]		8000
Frame No.		A112
Continuous rated torque[N・m]		35.0
GD^2 [kg・m^2]		0.098
Inertia[kg・m^2]		0.0245
Tolerable radial load(*2) [N]		1960
Cooling fan	Input voltage	3-phase 400V
	Maximum power consumption	70W
Degree of protection		IP44
Mass[kg]		60
Heat-resistant class		155(F)

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

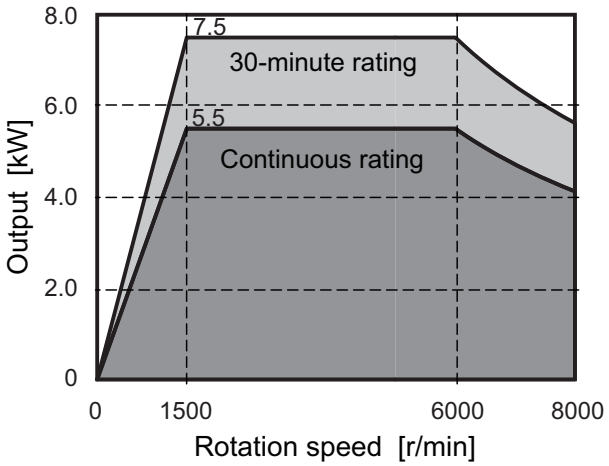
(*2)



(Note) The load point is at the one-half of the shaft length.

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

Output characteristics

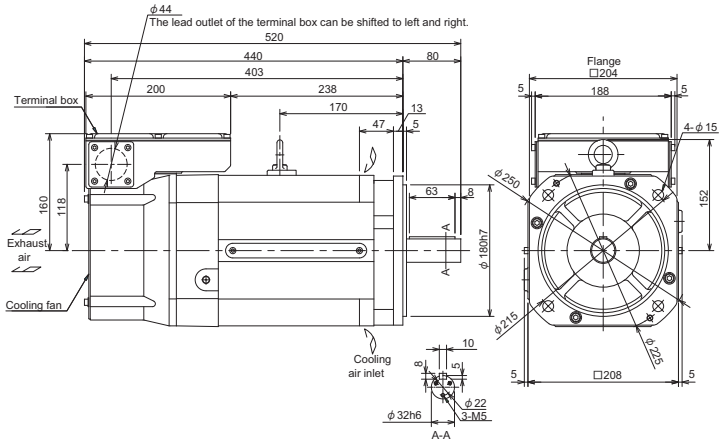


Environmental conditions

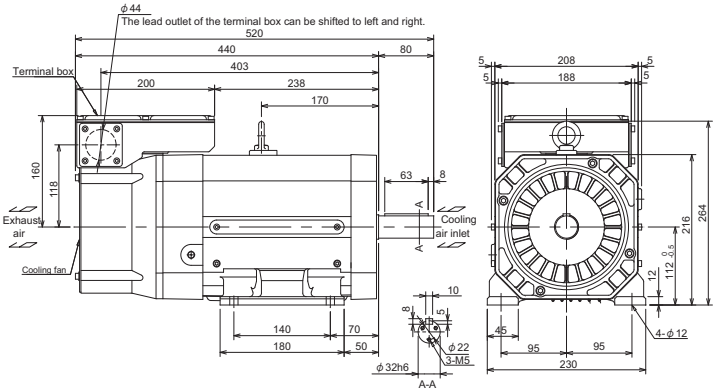
Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Outline dimension drawings [Unit : mm]

SJ-4-V7.5-12T with standard flange



SJ-4-V7.5-12T with standard legs



Base rotation speed 1500r/min series

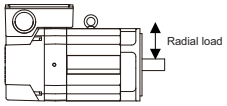
SJ-4-V7.5-13ZT

Specifications

Item		Specifications
Compatible drive unit (*1)		MDS-DH-SP-80
Output capacity[kW]	Continuous rated output	5.5
	Short time rated output	7.5 (30-minute rating)
	Standard output during acceleration/deceleration	7.5
	Actual acceleration/deceleration output (*3)	9
Base rotation speed[r/min]		1500
Maximum rotation speed[r/min]		12000
Frame No.		A112
Continuous rated torque[N・m]		35.0
GD^2 [kg・m^2]		0.098
Inertia[kg・m^2]		0.0245
Tolerable radial load(*2) [N]		980
Cooling fan	Input voltage	3-phase 400V
	Maximum power consumption	70W
Degree of protection		IP44
Mass[kg]		60
Heat-resistant class		155(F)

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

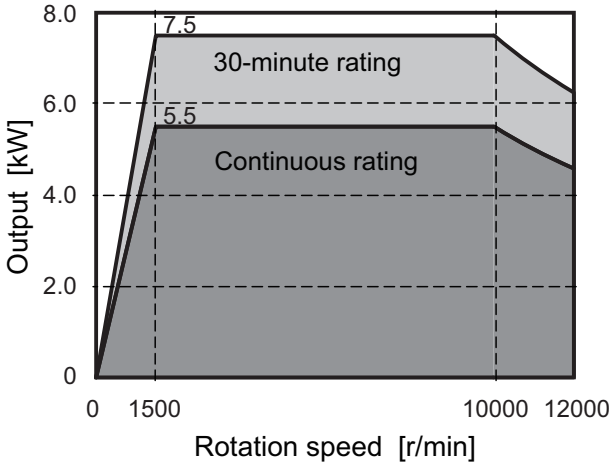
(*2)



(Note) The load point is at the one-half of the shaft length.

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

Output characteristics

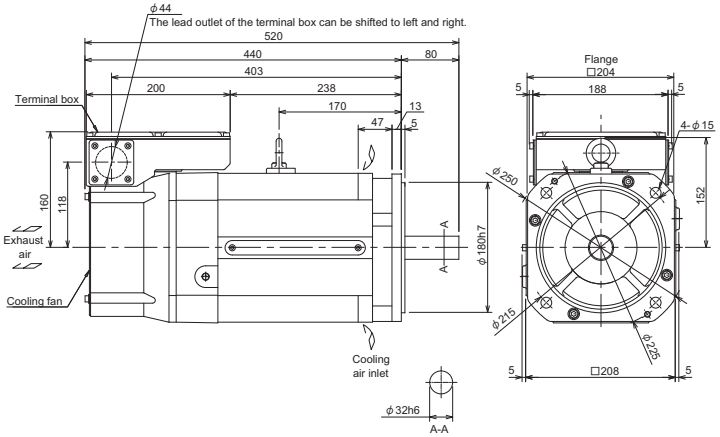


Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Outline dimension drawings [Unit : mm]

SJ-4-V7.5-13ZT with standard flange



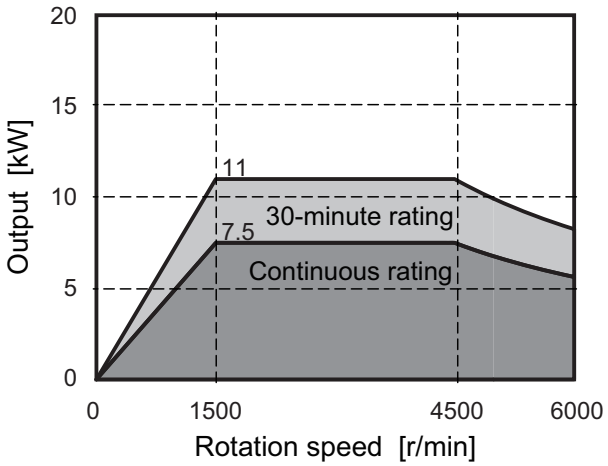
Base rotation speed 1500r/min series

SJ-4-V11-18T

Specifications

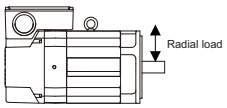
Item		Specifications
Compatible drive unit (*1)		MDS-DH-SP-80
Output capacity[kW]	Continuous rated output	7.5
	Short time rated output	11 (30-minute rating)
	Standard output during acceleration/deceleration	11
	Actual acceleration/deceleration output (*3)	13.2
Base rotation speed[r/min]		1500
Maximum rotation speed[r/min]		6000
Frame No.		B112
Continuous rated torque[N・m]		47.7
GD^2 [kg・m^2]		0.12
Inertia[kg・m^2]		0.03
Tolerable radial load(*2) [N]		1960
Cooling fan	Input voltage	3-phase 400V
	Maximum power consumption	70W
Degree of protection		IP44
Mass[kg]		70
Heat-resistant class		155(F)

Output characteristics



(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

(*2)



(Note) The load point is at the one-half of the shaft length.

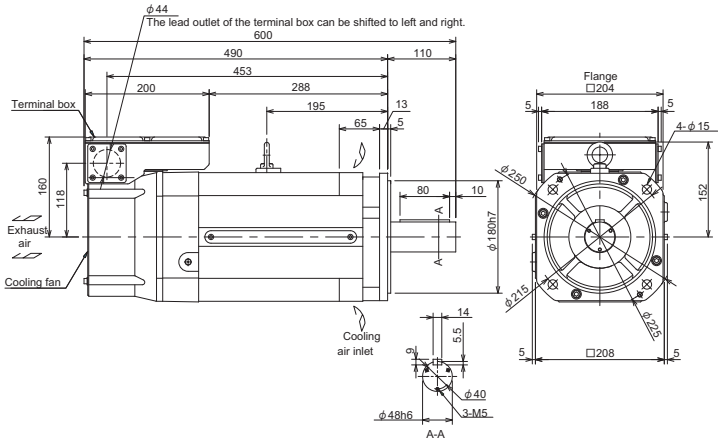
(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

Environmental conditions

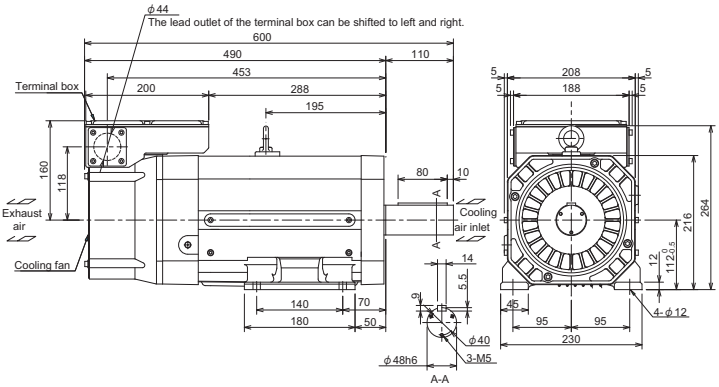
Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Outline dimension drawings [Unit : mm]

SJ-4-V11-18T with standard flange



SJ-4-V11-18T with standard legs



Base rotation speed 1500r/min series

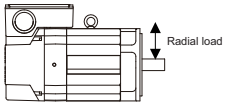
SJ-4-V11-22ZT

Specifications

Item		Specifications
Compatible drive unit (*1)		MDS-DH-SP-100
Output capacity[kW]	Continuous rated output	5.5
	Short time rated output	7.5 (30-minute rating)
	Standard output during acceleration/ deceleration	7.5
	Actual acceleration/deceleration output (*3)	9
Base rotation speed[r/min]		1500
Maximum rotation speed[r/min]		12000
Frame No.		A112
Continuous rated torque[N・m]		35.0
GD^2 [kg・m^2]		0.098
Inertia[kg・m^2]		0.025
Tolerable radial load(*2) [N]		980
Cooling fan	Input voltage	3-phase 400V
	Maximum power consumption	70W
Degree of protection		IP44
Mass[kg]		60
Heat-resistant class		155(F)

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

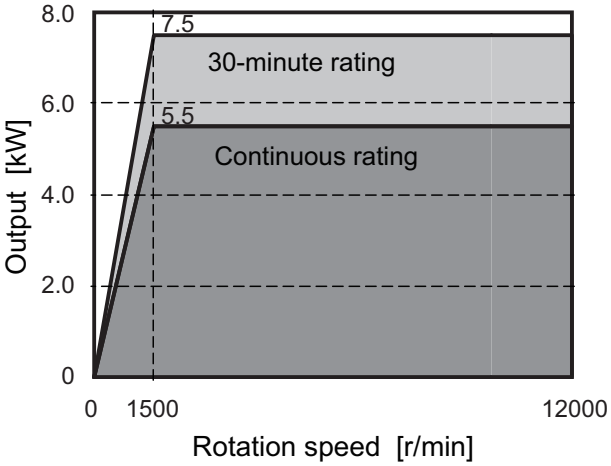
(*2)



(Note) The load point is at the one-half of the shaft length.

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

Output characteristics

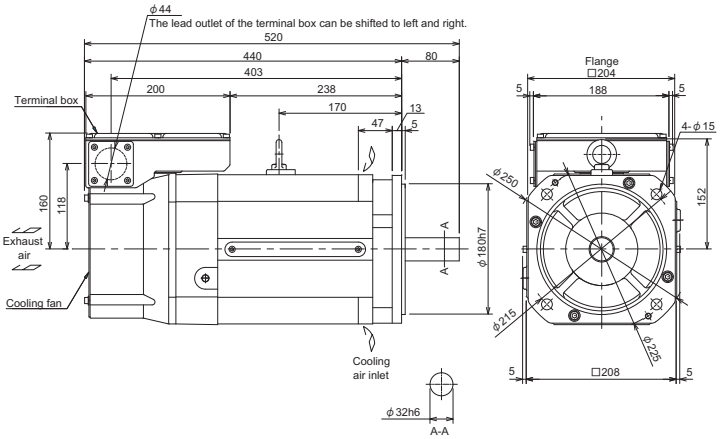


Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Outline dimension drawings [Unit : mm]

SJ-4-V11-22ZT with standard flange



Base rotation speed 1500r/min series

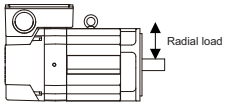
SJ-4-V11-23ZT

Specifications

Item		Specifications
Compatible drive unit (*1)		MDS-DH-SP-100
Output capacity[kW]	Continuous rated output	7.5
	Short time rated output	11 (30-minute rating)
	Standard output during acceleration/ deceleration	11
	Actual acceleration/deceleration output (*3)	13.2
Base rotation speed[r/min]		1500
Maximum rotation speed[r/min]		8000
Frame No.		B112
Continuous rated torque[N・m]		47.7
GD^2 [kg・m^2]		0.12
Inertia[kg・m^2]		0.03
Tolerable radial load(*2) [N]		1470
Cooling fan	Input voltage	3-phase 400V
	Maximum power consumption	70W
Degree of protection		IP44
Mass[kg]		70
Heat-resistant class		155(F)

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

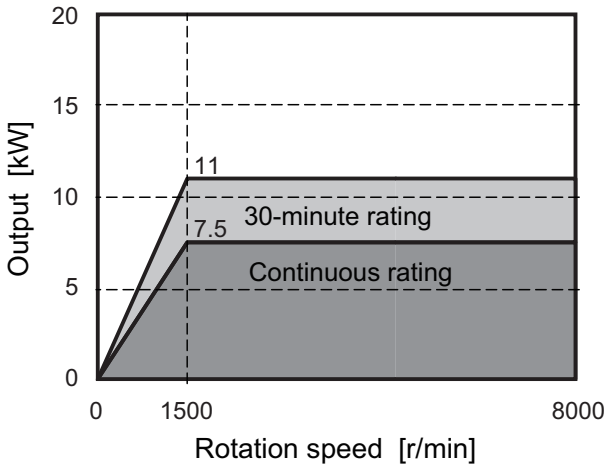
(*2)



(Note) The load point is at the one-half of the shaft length.

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

Output characteristics

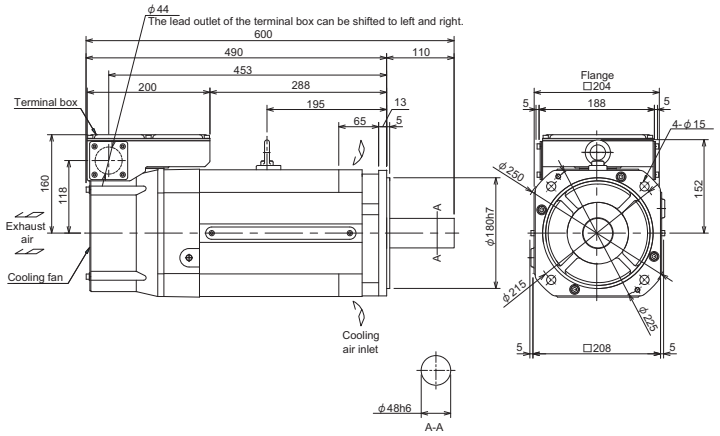


Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Outline dimension drawings [Unit : mm]

SJ-4-V11-23ZT with standard flange



Base rotation speed 1500r/min series

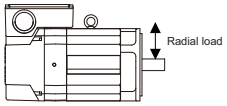
SJ-4-V15-18T

Specifications

Item		Specifications
Compatible drive unit (*1)		MDS-DH-SP-100
Output capacity[kW]	Continuous rated output	11
	Short time rated output	15 (30-minute rating)
	Standard output during acceleration/ deceleration	15
	Actual acceleration/deceleration output (*3)	18
Base rotation speed[r/min]		1500
Maximum rotation speed[r/min]		6000
Frame No.		A160
Continuous rated torque[N・m]		70.0
GD^2 [kg・m^2]		0.23
Inertia[kg・m^2]		0.0575
Tolerable radial load(*2) [N]		2940
Cooling fan	Input voltage	3-phase 400V
	Maximum power consumption	72W
Degree of protection		IP44
Mass[kg]		110
Heat-resistant class		155(F)

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

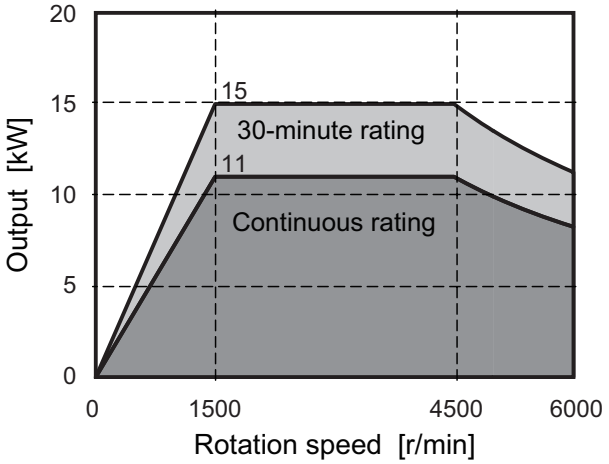
(*2)



(Note) The load point is at the one-half of the shaft length.

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

Output characteristics

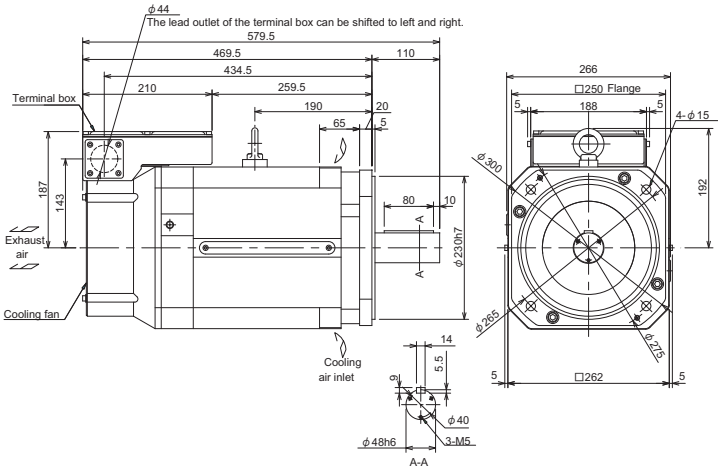


Environmental conditions

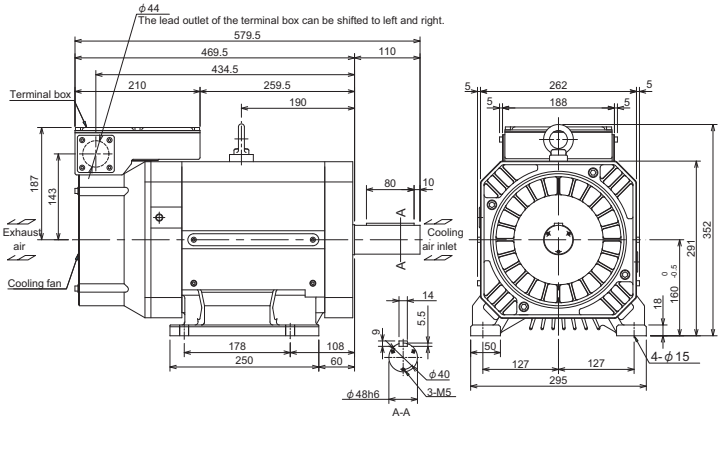
Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Outline dimension drawings [Unit : mm]

SJ-4-V15-18T with standard flange



SJ-4-V15-18T with standard legs



Base rotation speed 1500r/min series

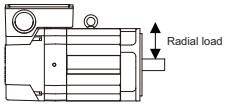
SJ-4-V18.5-14T

Specifications

Item		Specifications
Compatible drive unit (*1)		MDS-DH-SP-100
Output capacity[kW]	Continuous rated output	15
	Short time rated output	18.5 (30-minute rating)
	Standard output during acceleration/ deceleration	18.5
	Actual acceleration/deceleration output (*3)	22.2
Base rotation speed[r/min]		1500
Maximum rotation speed[r/min]		6000
Frame No.		A160
Continuous rated torque[N・m]		95.5
GD^2 [kg・m^2]		0.23
Inertia[kg・m^2]		0.0575
Tolerable radial load(*2) [N]		2940
Cooling fan	Input voltage	3-phase 400V
	Maximum power consumption	72W
Degree of protection		IP44
Mass[kg]		110
Heat-resistant class		155(F)

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

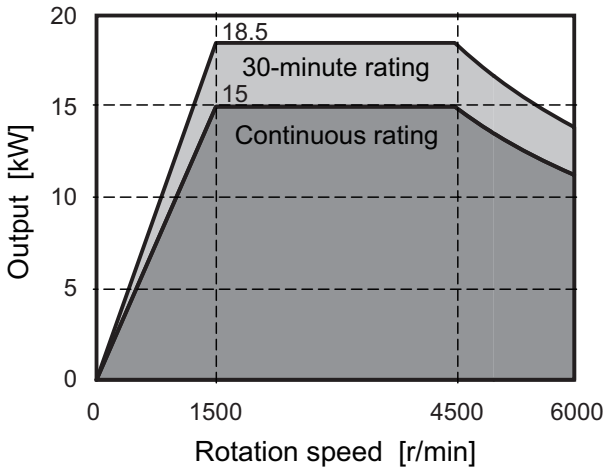
(*2)



(Note) The load point is at the one-half of the shaft length.

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

Output characteristics

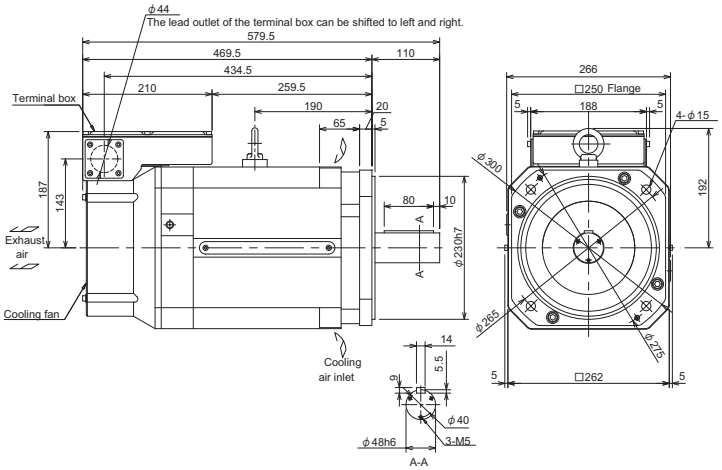


Environmental conditions

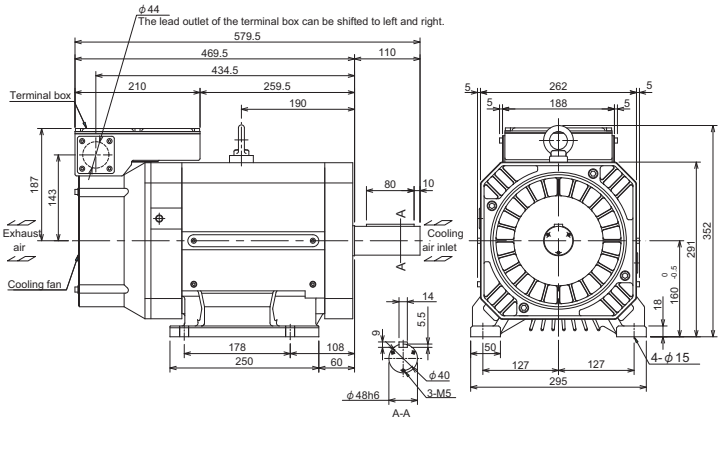
Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Outline dimension drawings [Unit : mm]

SJ-4-V18.5-14T with standard flange



SJ-4-V18.5-14T with standard legs



Base rotation speed 1500r/min series

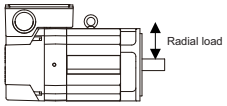
SJ-4-V22-15T

Specifications

Item		Specifications
Compatible drive unit (*1)		MDS-DH-SP-160
Output capacity[kW]	Continuous rated output	18.5
	Short time rated output	22 (30-minute rating)
	Standard output during acceleration/ deceleration	22
	Actual acceleration/deceleration output (*3)	26.4
Base rotation speed[r/min]		1500
Maximum rotation speed[r/min]		6000
Frame No.		B160
Continuous rated torque[N・m]		118
GD^2 [kg・m^2]		0.32
Inertia[kg・m^2]		0.08
Tolerable radial load(*2) [N]		2940
Cooling fan	Input voltage	3-phase 400V
	Maximum power consumption	72W
Degree of protection		IP44
Mass[kg]		135
Heat-resistant class		155(F)

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

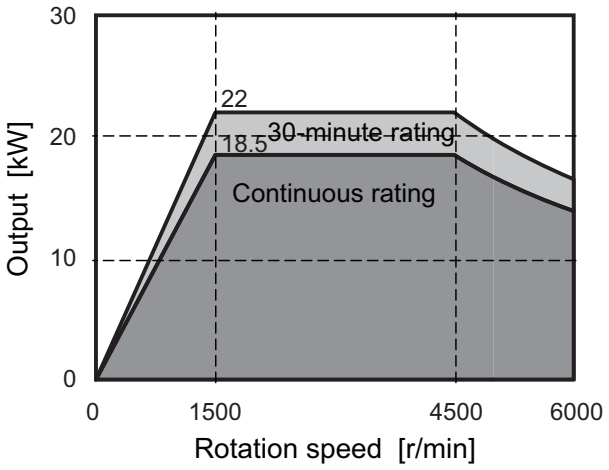
(*2)



(Note) The load point is at the one-half of the shaft length.

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

Output characteristics

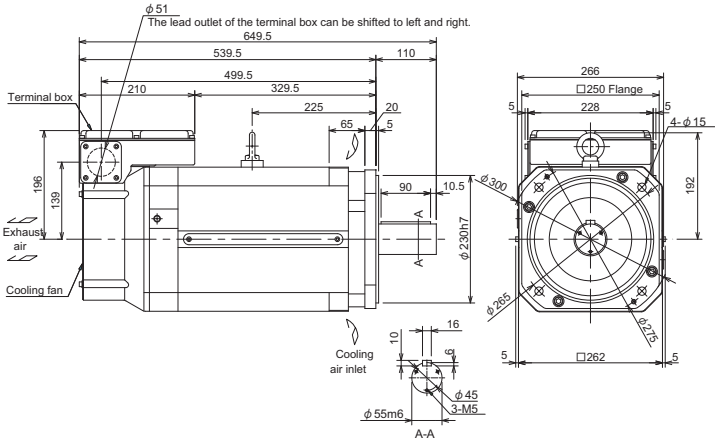


Environmental conditions

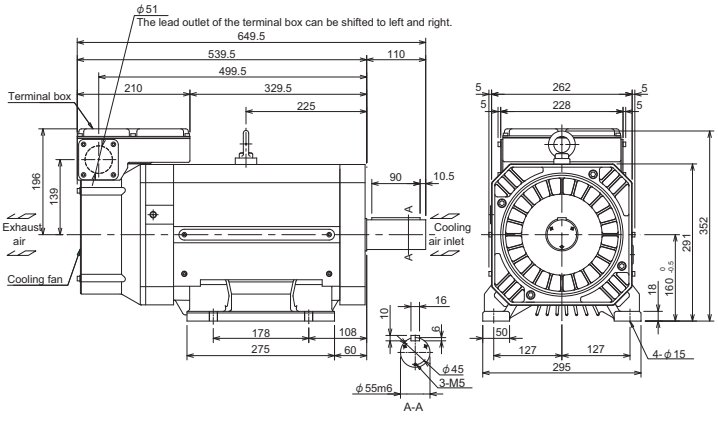
Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Outline dimension drawings [Unit : mm]

SJ-4-V22-15T with standard flange



SJ-4-V22-15T with standard legs



Base rotation speed 1500r/min series

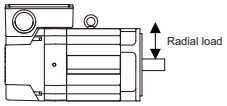
SJ-4-V22-18ZT

Specifications

Item		Specifications
Compatible drive unit (*1)		MDS-DH-SP-160
Output capacity[kW]	Continuous rated output	11
	Short time rated output	15 (30-minute rating)
	Standard output during acceleration/ deceleration	15
	Actual acceleration/deceleration output (*3)	18
Base rotation speed[r/min]		1500
Maximum rotation speed[r/min]		8000
Frame No.		A160
Continuous rated torque[N・m]		70.0
GD^2 [kg・m^2]		0.23
Inertia[kg・m^2]		0.0575
Tolerable radial load(*2) [N]		2940
Cooling fan	Input voltage	3-phase 400V
	Maximum power consumption	72W
Degree of protection		IP44
Mass[kg]		110
Heat-resistant class		155(F)

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

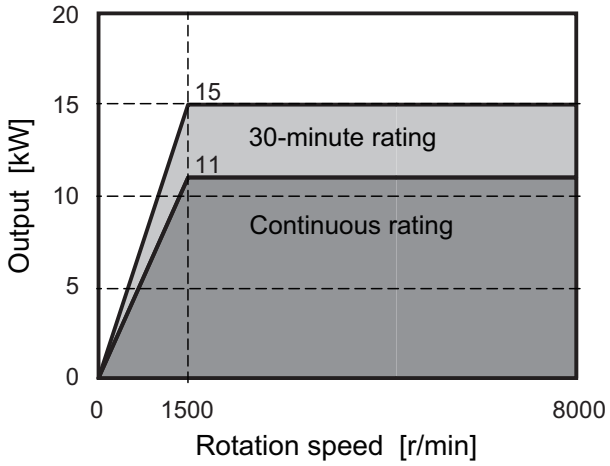
(*2)



(Note) The load point is at the one-half of the shaft length.

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

Output characteristics

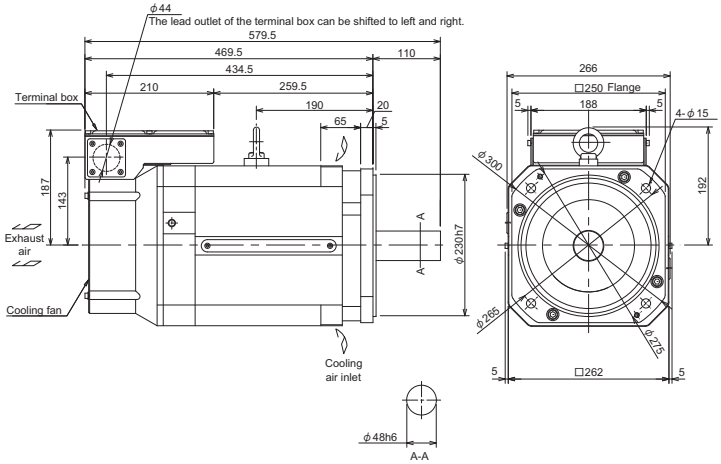


Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Outline dimension drawings [Unit : mm]

SJ-4-V22-18ZT with standard flange



Base rotation speed 1500r/min series

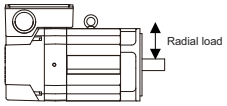
SJ-4-V26-08T

Specifications

Item		Specifications
Compatible drive unit (*1)		MDS-DH-SP-160
Output capacity[kW]	Continuous rated output	22
	Short time rated output	26 (30-minute rating)
	Standard output during acceleration/ deceleration	26
	Actual acceleration/deceleration output (*3)	31.2
Base rotation speed[r/min]		1500
Maximum rotation speed[r/min]		6000
Frame No.		C160
Continuous rated torque[N・m]		140
GD^2 [kg・m^2]		0.38
Inertia[kg・m^2]		0.0925
Tolerable radial load(*2) [N]		2940
Cooling fan	Input voltage	3-phase 400V
	Maximum power consumption	72W
Degree of protection		IP44
Mass[kg]		155
Heat-resistant class		155(F)

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

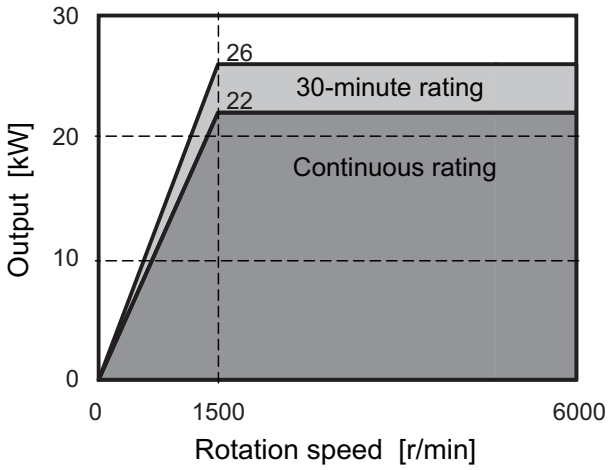
(*2)



(Note) The load point is at the one-half of the shaft length.

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

Output characteristics

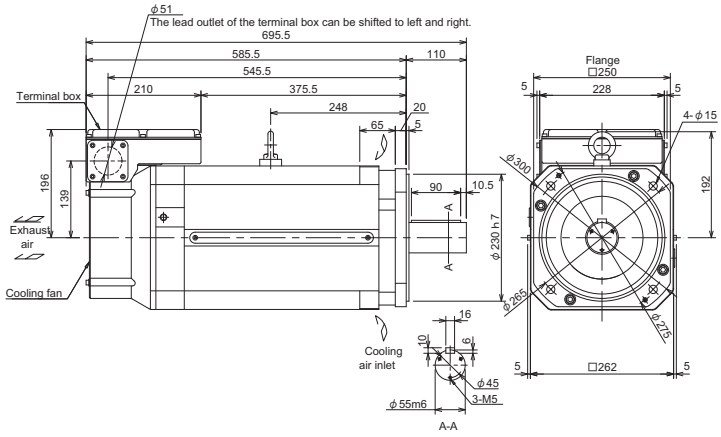


Environmental conditions

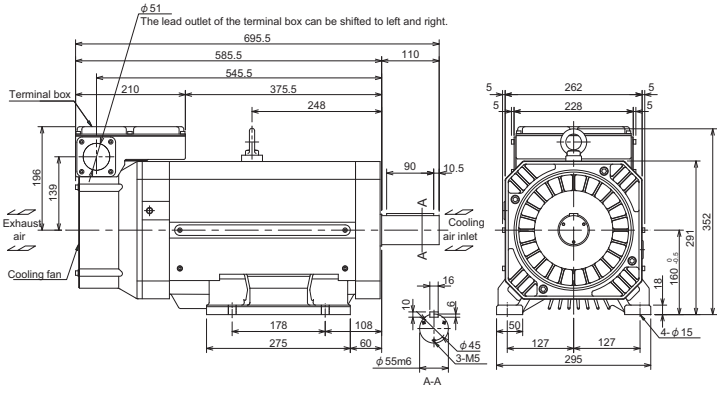
Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Outline dimension drawings [Unit : mm]

SJ-4-V26-08T with standard flange



SJ-4-V26-08T with standard legs



Base rotation speed 1500r/min series

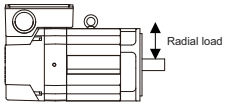
SJ-4-V30-15ZT

Specifications

Item		Specifications
Compatible drive unit (*1)		MDS-DH-SP-160
Output capacity[kW]	Continuous rated output	18.5
	Short time rated output	22 (30-minute rating)
	Standard output during acceleration/deceleration	22
	Actual acceleration/deceleration output (*3)	26.4
Base rotation speed[r/min]		1500
Maximum rotation speed[r/min]		8000
Frame No.		B160
Continuous rated torque[N・m]		118
GD^2 [kg・m^2]		0.32
Inertia[kg・m^2]		0.08
Tolerable radial load(*2) [N]		1960
Cooling fan	Input voltage	3-phase 400V
	Maximum power consumption	72W
Degree of protection		IP44
Mass[kg]		155
Heat-resistant class		155(F)

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

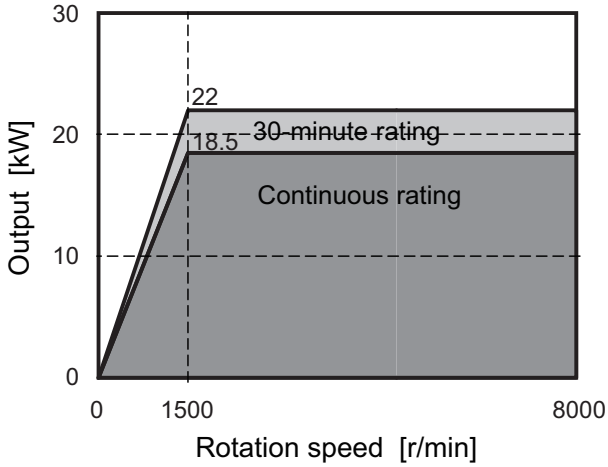
(*2)



(Note) The load point is at the one-half of the shaft length.

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

Output characteristics

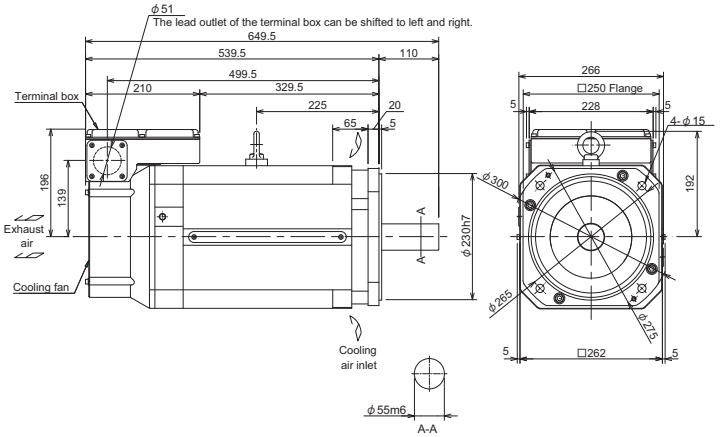


Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Outline dimension drawings [Unit : mm]

SJ-4-V30-15ZT with standard flange



Base rotation speed 1150r/min series

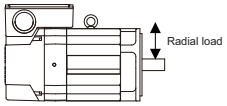
SJ-4-V37-04ZT

Specifications

Item		Specifications
Compatible drive unit (*1)		MDS-DH-SP-200
Output capacity[kW]	Continuous rated output	30
	Short time rated output	37 (30-minute rating)
	Standard output during acceleration/ deceleration	37
	Actual acceleration/deceleration output (*3)	44.4
Base rotation speed[r/min]		1150
Maximum rotation speed[r/min]		6000
Frame No.		B180
Continuous rated torque[N・m]		249
GD^2 [kg・m^2]		1.36
Inertia[kg・m^2]		0.34
Tolerable radial load(*2) [N]		3920
Cooling fan	Input voltage	3-phase 400V
	Maximum power consumption	(Confirm in each motor specifications)
Degree of protection		IP44
Mass[kg]		300
Heat-resistant class		155(F)

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

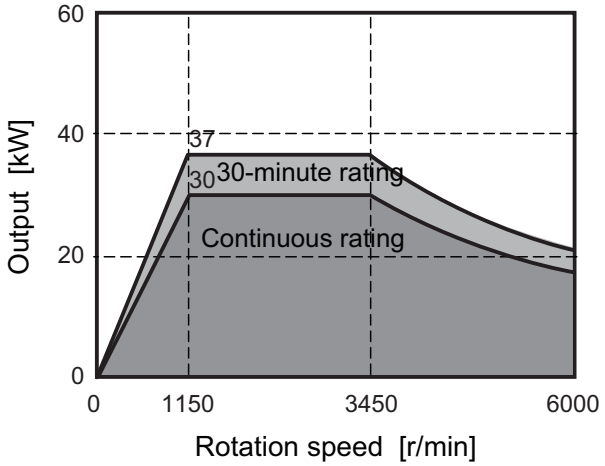
(*2)



(Note) The load point is at the one-half of the shaft length.

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

Output characteristics

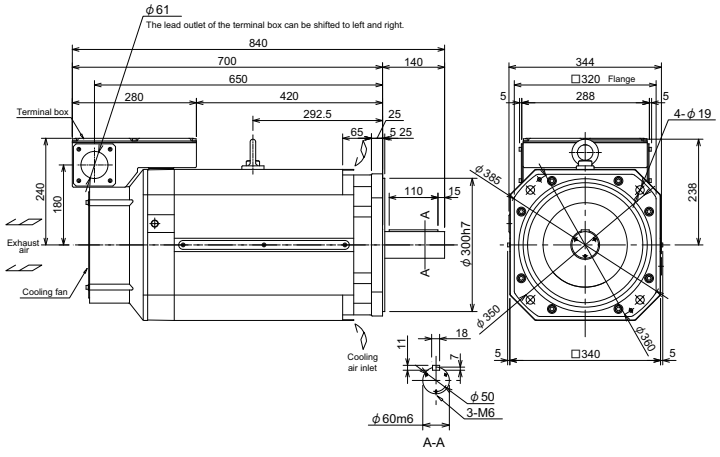


Environmental conditions

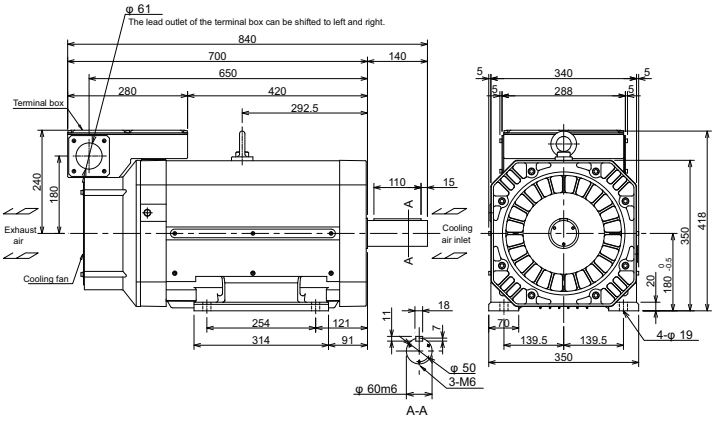
Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Outline dimension drawings [Unit : mm]

SJ-4-V37-04ZT with standard flange



SJ-4-V37-04ZT with standard legs



Base rotation speed 1500r/min series

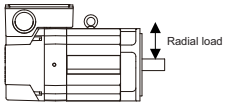
SJ-4-V45-02T

Specifications

Item		Specifications
Compatible drive unit (*1)		MDS-DH-SP-320
Output capacity[kW]	Continuous rated output	37
	Short time rated output	45 (30-minute rating)
	Standard output during acceleration/ deceleration	45
	Actual acceleration/deceleration output (*3)	54
Base rotation speed[r/min]		1500
Maximum rotation speed[r/min]		4500
Frame No.		B180
Continuous rated torque[N・m]		236
GD^2 [kg・m^2]		1.36
Inertia[kg・m^2]		0.34
Tolerable radial load(*2) [N]		3920
Cooling fan	Input voltage	3-phase 400V
	Maximum power consumption	(Confirm in each motor specifications)
Degree of protection		IP44
Mass[kg]		300
Heat-resistant class		155(F)

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

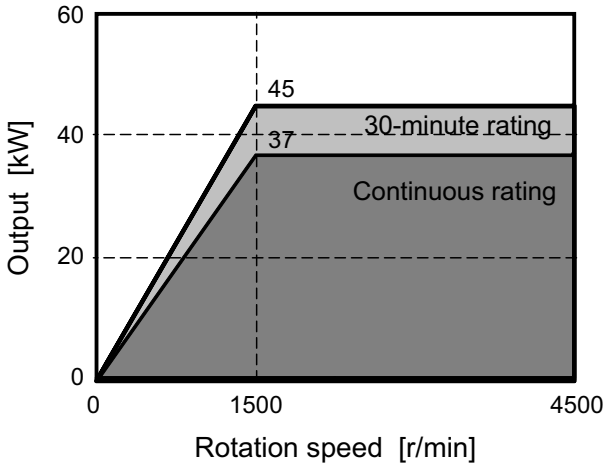
(*2)



(Note) The load point is at the one-half of the shaft length.

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

Output characteristics

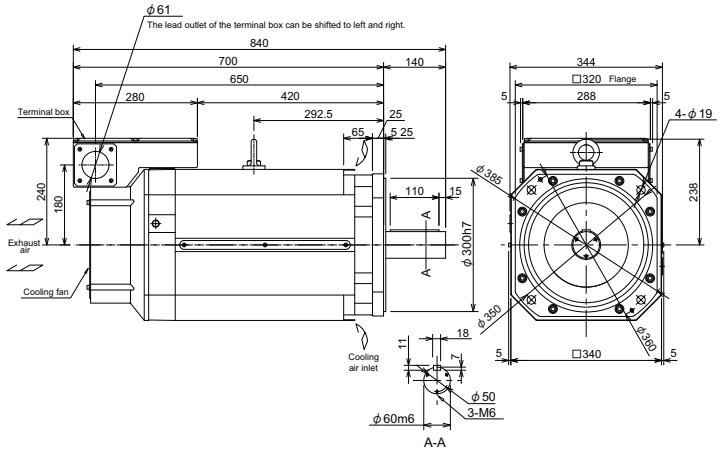


Environmental conditions

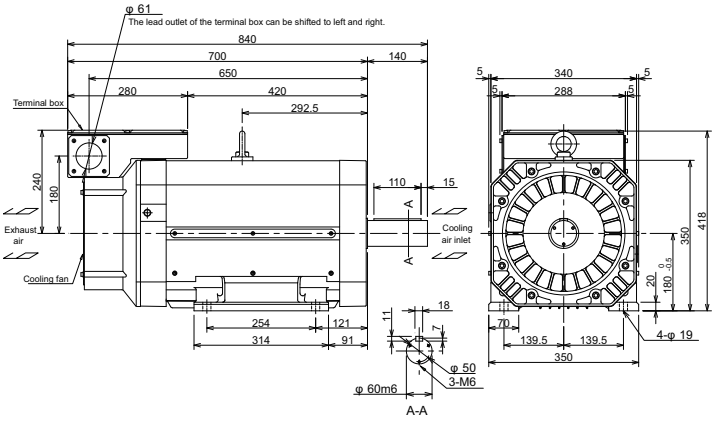
Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Outline dimension drawings [Unit : mm]

SJ-4-V45-02T with standard flange



SJ-4-V45-02T with standard legs



Base rotation speed 1150r/min series

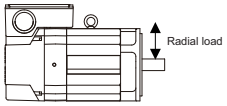
SJ-4-V55-03T

Specifications

Item		Specifications
Compatible drive unit (*1)		MDS-DH-SP-320
Output capacity[kW]	Continuous rated output	45
	Short time rated output	55 (30-minute rating)
	Standard output during acceleration/ deceleration	55
	Actual acceleration/deceleration output (*3)	66
Base rotation speed[r/min]		1150
Maximum rotation speed[r/min]		3450
Frame No.		A225
Continuous rated torque[N・m]		374
GD^2 [kg・m^2]		3.39
Inertia[kg・m^2]		0.85
Tolerable radial load(*2) [N]		5880
Cooling fan	Input voltage	3-phase 400V
	Maximum power consumption	(Confirm in each motor specifications)
Degree of protection		IP44
Mass[kg]		450
Heat-resistant class		155(F)

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

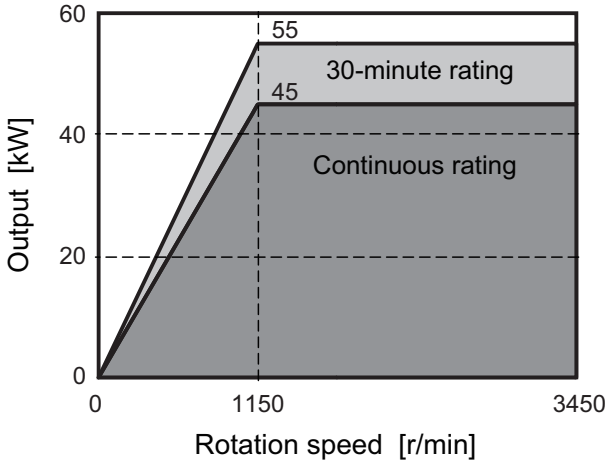
(*2)



(Note) The load point is at the one-half of the shaft length.

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

Output characteristics

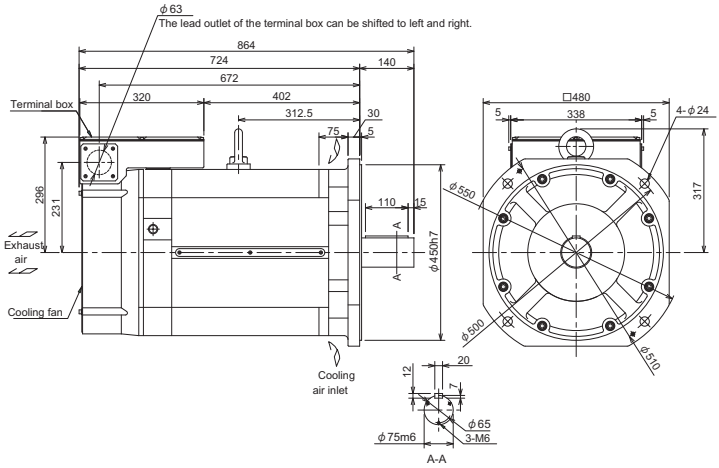


Environmental conditions

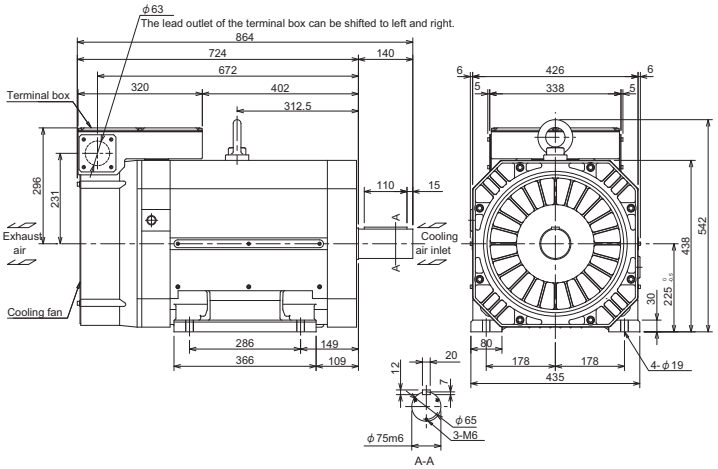
Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Outline dimension drawings [Unit : mm]

SJ-4-V55-03T with standard flange



SJ-4-V55-03T with standard legs



Wide range constant output series

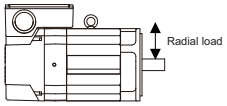
SJ-4-V11-21T

Specifications

Item		Specifications
Compatible drive unit (*1)		MDS-DH-SP-80
Output capacity[kW]	Continuous rated output	5.5
	Short time rated output	7.5 (30-minute rating)
	Standard output during acceleration/ deceleration	7.5
	Actual acceleration/deceleration output (*3)	9
Base rotation speed[r/min]		750
Maximum rotation speed[r/min]		6000
Frame No.		A160
Continuous rated torque[N・m]		70.0
GD^2 [kg・m^2]		0.23
Inertia[kg・m^2]		0.06
Tolerable radial load(*2) [N]		2940
Cooling fan	Input voltage	3-phase 400V
	Maximum power consumption	72W
Degree of protection		IP44
Mass[kg]		110
Heat-resistant class		155(F)

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

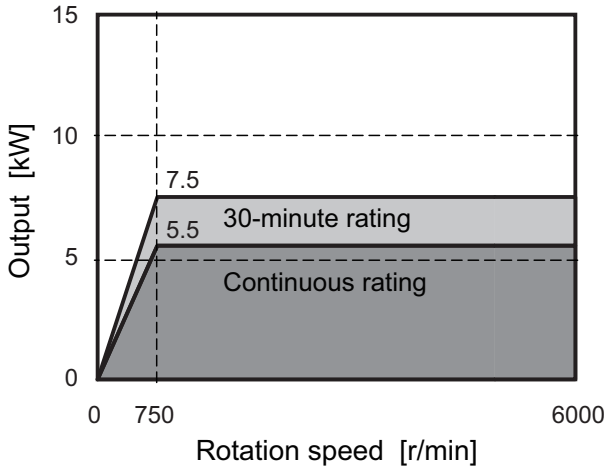
(*2)



(Note) The load point is at the one-half of the shaft length.

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

Output characteristics

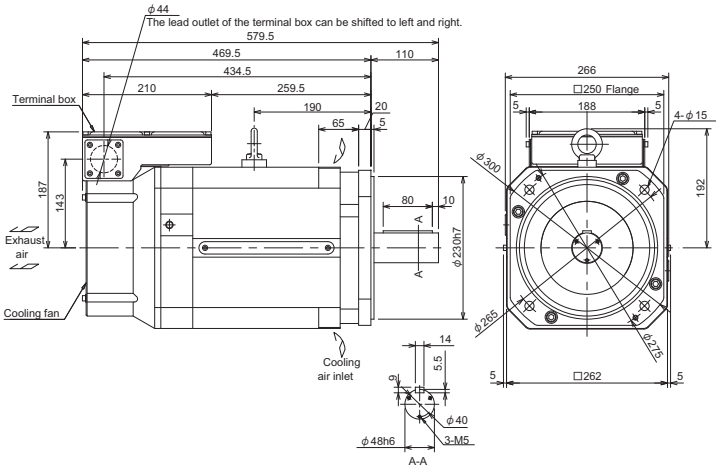


Environmental conditions

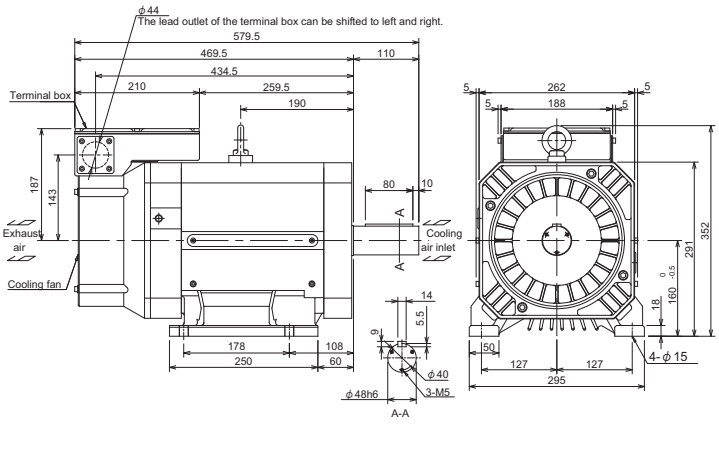
Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Outline dimension drawings [Unit : mm]

SJ-4-V11-21T with standard flange



SJ-4-V11-21T with standard legs



Wide range constant output series

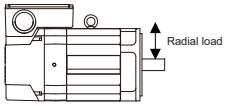
SJ-4-V15-20T

Specifications

Item		Specifications
Compatible drive unit (*1)		MDS-DH-SP-100
Output capacity[kW]	Continuous rated output	7.5
	Short time rated output	9 (30-minute rating)
	Standard output during acceleration/ deceleration	9
	Actual acceleration/deceleration output (*3)	10.8
Base rotation speed[r/min]		750
Maximum rotation speed[r/min]		6000
Frame No.		A160
Continuous rated torque[N・m]		95.5
GD^2 [kg・m^2]		0.23
Inertia[kg・m^2]		0.06
Tolerable radial load(*2) [N]		2940
Cooling fan	Input voltage	3-phase 400V
	Maximum power consumption	72W
Degree of protection		IP44
Mass[kg]		110
Heat-resistant class		155(F)

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

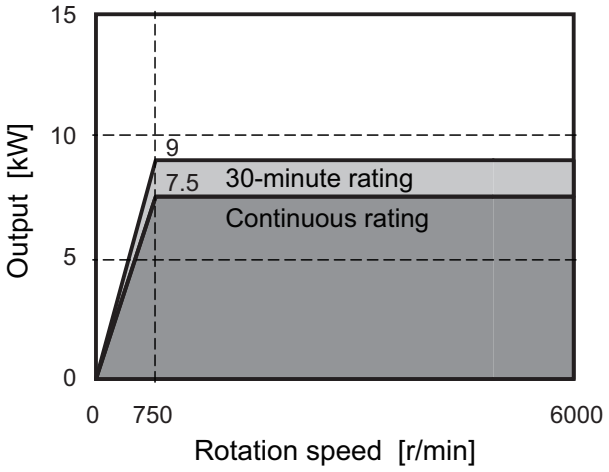
(*2)



(Note) The load point is at the one-half of the shaft length.

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

Output characteristics

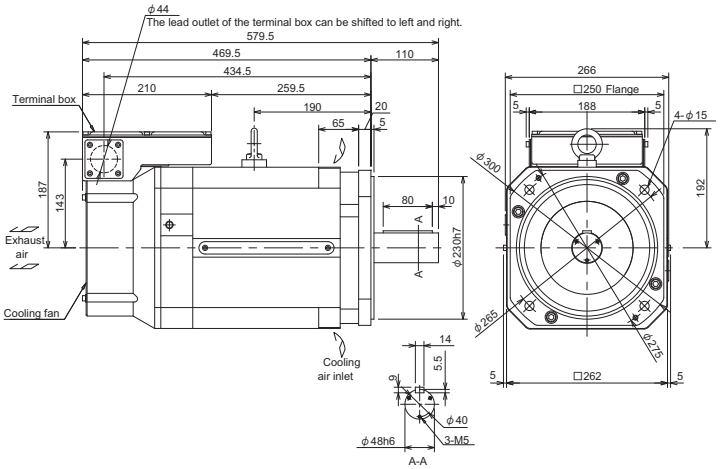


Environmental conditions

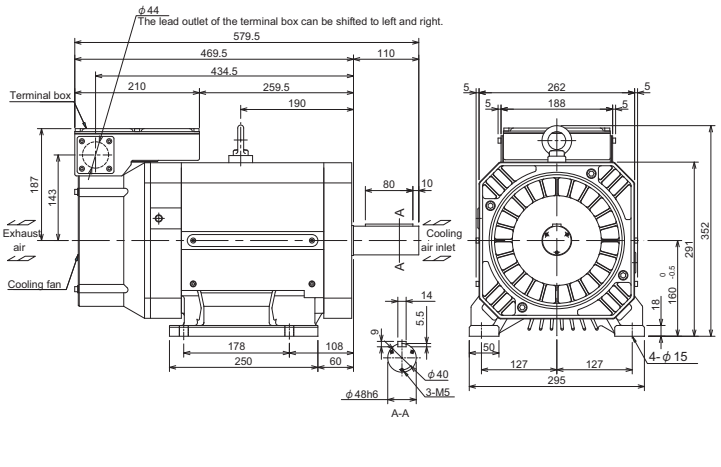
Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Outline dimension drawings [Unit : mm]

SJ-4-V15-20T with standard flange



SJ-4-V15-20T with standard legs



Wide range constant output series

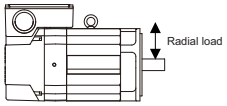
SJ-4-V18.5-17T

Specifications

Item		Specifications
Compatible drive unit (*1)		MDS-DH-SP-160
Output capacity[kW]	Continuous rated output	9
	Short time rated output	11 (30-minute rating)
	Standard output during acceleration/ deceleration	11
	Actual acceleration/deceleration output (*3)	13.2
Base rotation speed[r/min]		750
Maximum rotation speed[r/min]		6000
Frame No.		B160
Continuous rated torque[N・m]		115
GD^2 [kg・m^2]		0.32
Inertia[kg・m^2]		0.08
Tolerable radial load(*2) [N]		2940
Cooling fan	Input voltage	3-phase 400V
	Maximum power consumption	72W
Degree of protection		IP44
Mass[kg]		135
Heat-resistant class		155(F)

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

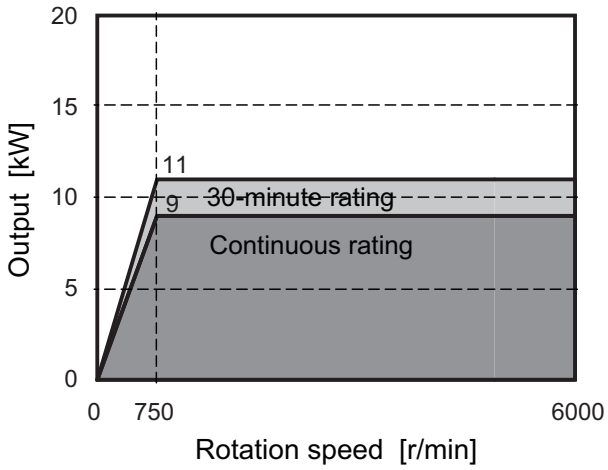
(*2)



(Note) The load point is at the one-half of the shaft length.

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

Output characteristics

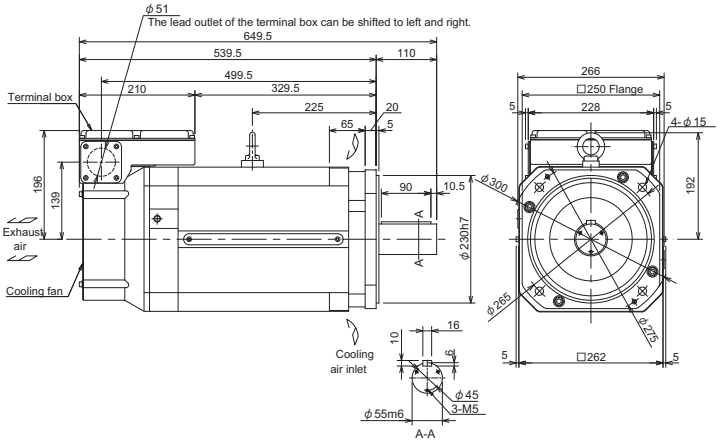


Environmental conditions

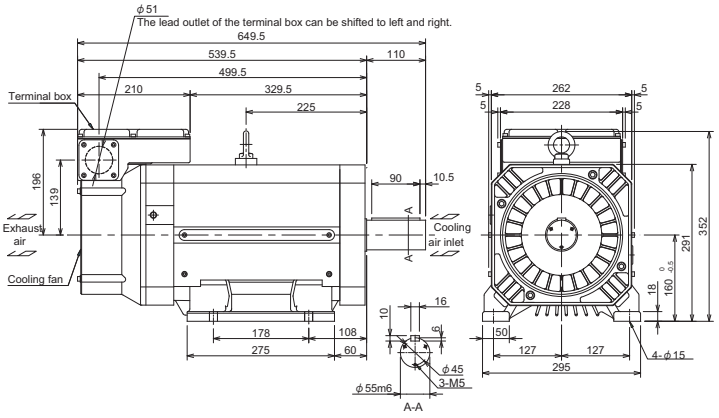
Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Outline dimension drawings [Unit : mm]

SJ-4-V18.5-17T with standard flange



SJ-4-V18.5-17T with standard legs



Wide range constant output series

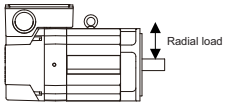
SJ-4-V22-16T

Specifications

Item		Specifications
Compatible drive unit (*1)		MDS-DH-SP-160
Output capacity[kW]	Continuous rated output	11
	Short time rated output	15 (30-minute rating)
	Standard output during acceleration/ deceleration	15
	Actual acceleration/deceleration output (*3)	18
Base rotation speed[r/min]		750
Maximum rotation speed[r/min]		6000
Frame No.		B160
Continuous rated torque[N・m]		140
GD^2 [kg・m^2]		0.32
Inertia[kg・m^2]		0.08
Tolerable radial load(*2) [N]		2940
Cooling fan	Input voltage	3-phase 400V
	Maximum power consumption	72W
Degree of protection		IP44
Mass[kg]		135
Heat-resistant class		155(F)

(*1) Only the combination designated in this manual can be used for the motor and drive unit. Always use the designated combination.

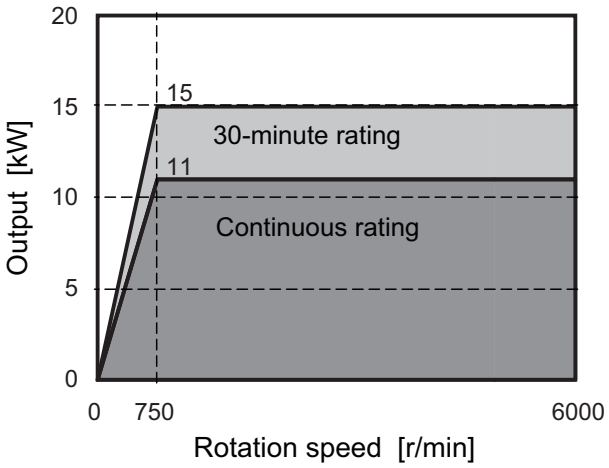
(*2)



(Note) The load point is at the one-half of the shaft length.

(*3) Actual acceleration/deceleration output is 1.2-fold of "Standard output during acceleration/deceleration" or 1.2-fold of "Short time rated output".

Output characteristics

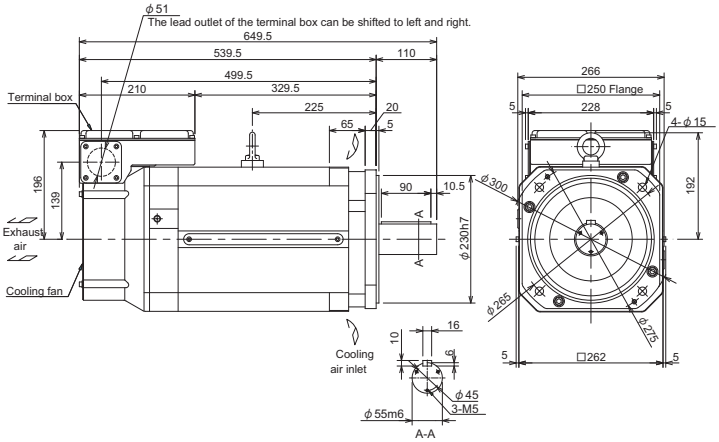


Environmental conditions

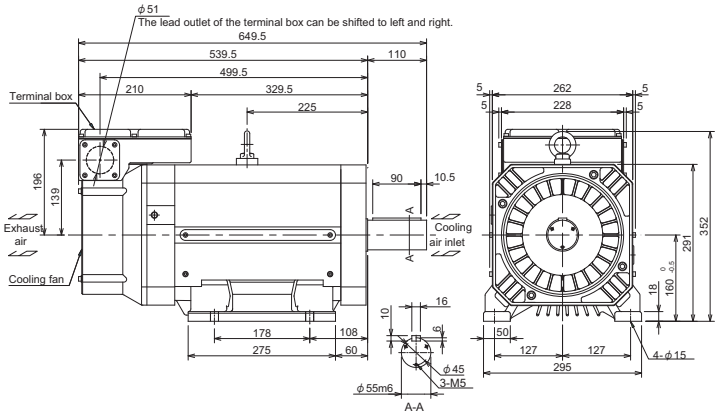
Item	Conditions
Ambient temperature	Operation: 0 to 40°C(with no freezing) Storage: -20°C to +65°C(with no freezing)
Ambient humidity	Operation:90% RH or less(with no dew condensation) Storage: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust
Altitude	Operation/storage: 1000m or less above sea level, Transportation: 10000m or less above sea level

Outline dimension drawings [Unit : mm]

SJ-4-V22-16T with standard flange



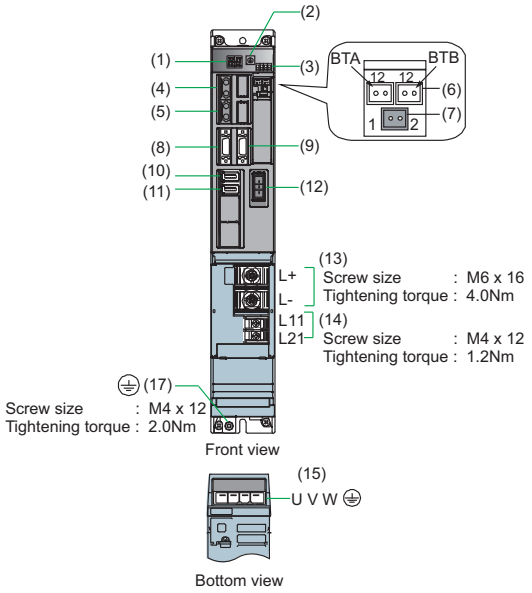
SJ-4-V22-16T with standard legs



Servo drive unit

Servo drive unit

MDS-DH-V1-10



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SWL	Axis No. setting switch
(3)	SW1	Unused axis setting switch
(4)	CN1A	NC or master axis optical communication connector
(5)	CN1B	Slave axis optical communication connector
(6)	BTA BTB	For connecting converged battery unit
(7)	BT1	For connecting battery built-in drive unit ER6V-C119B
(8)	CN9	(Unused)
(9)	CN4	Power supply communication connector
(10)	CN2L	Motor side encoder connection connector 5V power supply capacity: 0.35A
(11)	CN3L	Machine side encoder connection connector 5V power supply capacity: 0.35A
(12)	CN20	Motor brake/dynamic brake control connector
(13)	TE2	Main circuit power supply input terminal (DC input)
(14)	TE3	Control power input terminal (single-phase AC input)
(15)	TE1	Motor power supply output connector (3-phase AC output)
(17)	PE	Grounding terminal Note that TE1 connector is used for the motor grounding.

Specifications

Item		Specifications
Nominal maximum current(peak)[A]		10
Output	Rated voltage[V]	340AC
	Rated current[A]	2.3
Input	Rated voltage[V]	513 to 648DC
	Rated current[A]	0.9
Control power	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±3% max
	Voltage(50Hz)[V]	380 to 440AC
	Voltage(60Hz)[V]	380 to 480AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Max. current[A]	0.1
	Max. rush current[A]	18
	Max. rush conductivity time[ms]	12
Max. earth leakage current[mA]		2
Braking		Regenerative braking and dynamic brakes
	Dynamic brakes	Built-in
Heating value	Inside panel[W]	19
	Outside panel[W]	27
Cooling method		Forced air cooling
Mass[kg]		3.8

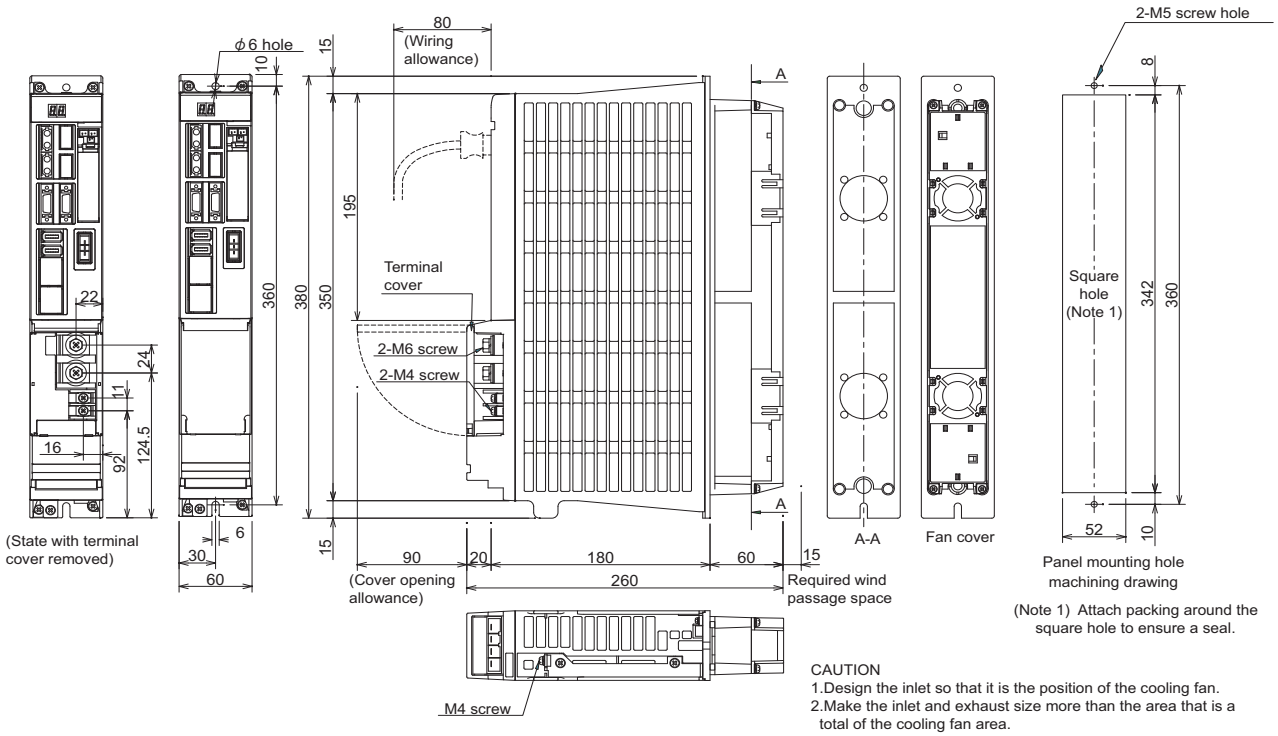
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	$4.9m/s^2$ (0.5G) / $49m/s^2$ (5G)

Recommended wire

	Terminal name					
	TE1 (U, V, W, earth)		TE2 (L+, L-)		TE3 (L11, L21, L12, L22, MC1)	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	2	14	Match with TE2 of selected power supply unit		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	2	14			2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	2	14			1.25 to 2	16 to 14

Outline dimension drawings [Unit : mm]

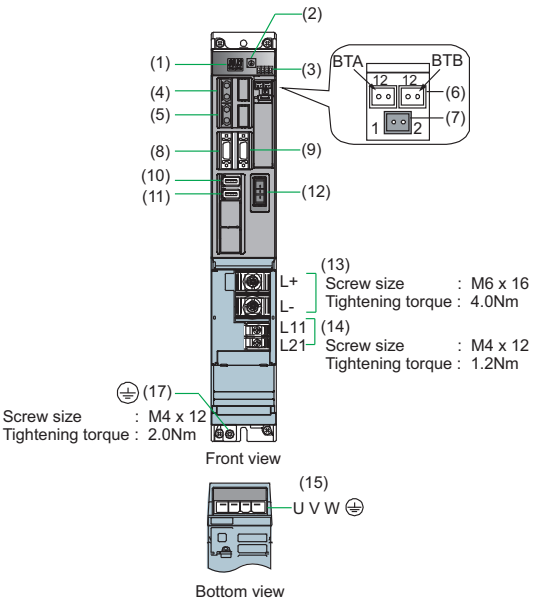


(Note 1) Attach packing around the square hole to ensure a seal.

CAUTION
1.Design the inlet so that it is the position of the cooling fan.
2.Make the inlet and exhaust size more than the area that is a total of the cooling fan area.

Servo drive unit

MDS-DH-V1-20



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SWL	Axis No. setting switch
(3)	SW1	Unused axis setting switch
(4)	CN1A	NC or master axis optical communication connector
(5)	CN1B	Slave axis optical communication connector
(6)	BTA BTB	For connecting converged battery unit
(7)	BT1	For connecting battery built-in drive unit ER6V-C119B
(8)	CN9	(Unused)
(9)	CN4	Power supply communication connector
(10)	CN2L	Motor side encoder connection connector 5V power supply capacity: 0.35A
(11)	CN3L	Machine side encoder connection connector 5V power supply capacity: 0.35A
(12)	CN20	Motor brake/dynamic brake control connector
(13)	TE2	Main circuit power supply input terminal (DC input)
(14)	TE3	Control power input terminal (single-phase AC input)
(15)	TE1	Motor power supply output connector (3-phase AC output)
(17)	PE	Grounding terminal Note that TE1 connector is used for the motor grounding.

Specifications

Item		Specifications
Nominal maximum current(peak)[A]		20
Output	Rated voltage[V]	340AC
	Rated current[A]	3.9
Input	Rated voltage[V]	513 to 648DC
	Rated current[A]	1.6
Control power	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±3% max
	Voltage(50Hz)[V]	380 to 440AC
	Voltage(60Hz)[V]	380 to 480AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Max. current[A]	0.1
	Max. rush current[A]	18
	Max. rush conductivity time[ms]	12
Max. earth leakage current[mA]		2
Braking		Regenerative braking and dynamic brakes
	Dynamic brakes	Built-in
Heating value	Inside panel[W]	22
	Outside panel[W]	46
Cooling method		Forced air cooling
Mass[kg]		3.8

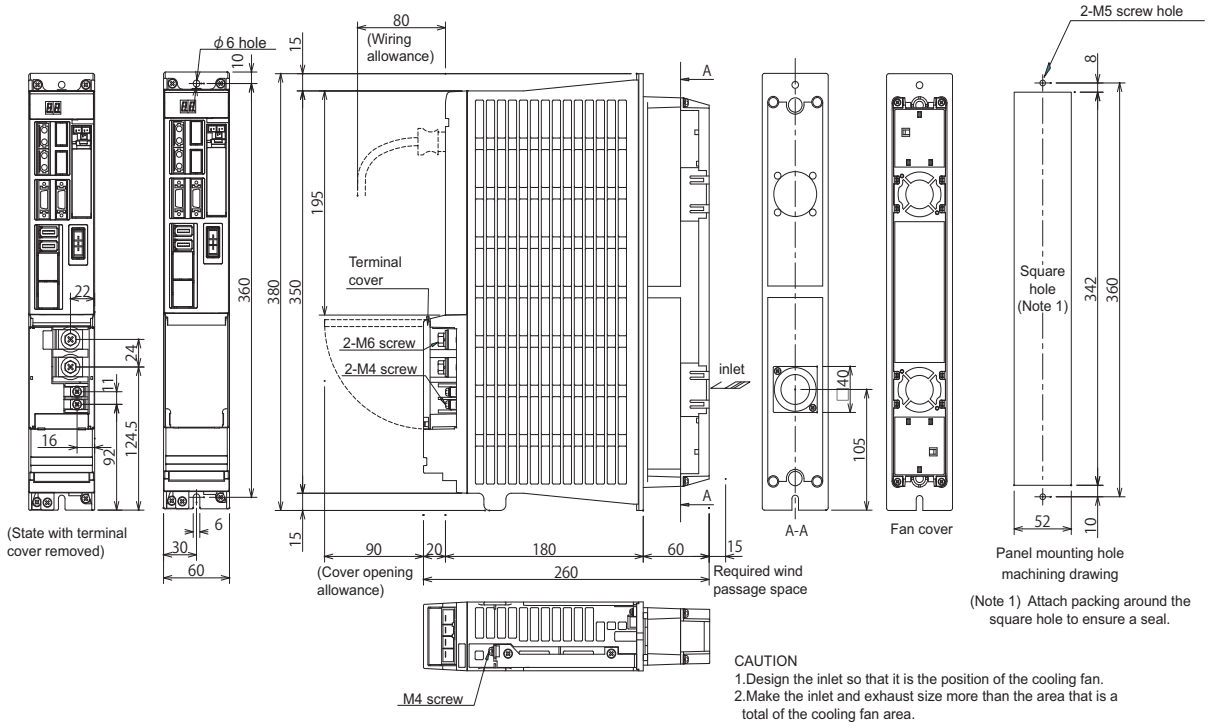
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	$4.9m/s^2$ (0.5G) / $49m/s^2$ (5G)

Recommended wire

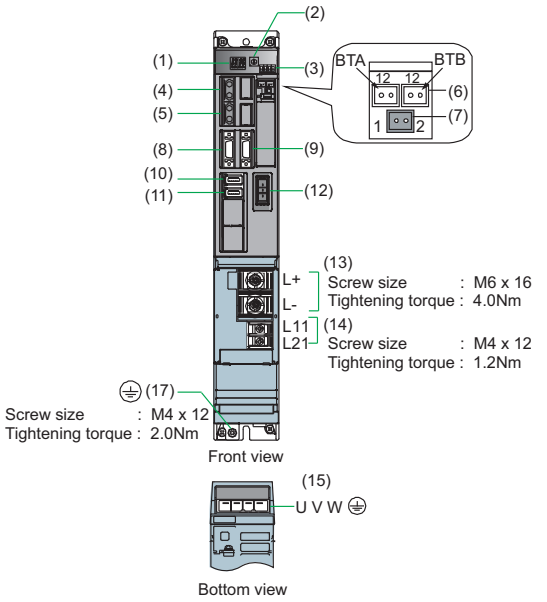
	Terminal name					
	TE1 (U, V, W, earth)		TE2 (L+, L-)		TE3 (L11, L21, L12, L22, MC1)	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	2	14	Match with TE2 of selected power supply unit		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	2	14			2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	2	14			1.25 to 2	16 to 14

Outline dimension drawings [Unit : mm]



Servo drive unit

MDS-DH-V1-40



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SWL	Axis No. setting switch
(3)	SW1	Unused axis setting switch
(4)	CN1A	NC or master axis optical communication connector
(5)	CN1B	Slave axis optical communication connector
(6)	BTA BTB	For connecting converged battery unit
(7)	BT1	For connecting battery built-in drive unit ER6V-C119B
(8)	CN9	(Unused)
(9)	CN4	Power supply communication connector
(10)	CN2L	Motor side encoder connection connector 5V power supply capacity: 0.35A
(11)	CN3L	Machine side encoder connection connector 5V power supply capacity: 0.35A
(12)	CN20	Motor brake/dynamic brake control connector
(13)	TE2	Main circuit power supply input terminal (DC input)
(14)	TE3	Control power input terminal (single-phase AC input)
(15)	TE1	Motor power supply output connector (3-phase AC output)
(17)	PE	Grounding terminal Note that TE1 connector is used for the motor grounding.

Specifications

Item		Specifications
Nominal maximum current(peak)[A]		40
Output	Rated voltage[V]	340AC
	Rated current[A]	7.3
Input	Rated voltage[V]	513 to 648DC
	Rated current[A]	2.9
Control power	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±3% max
	Voltage(50Hz)[V]	380 to 440AC
	Voltage(60Hz)[V]	380 to 480AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Max. current[A]	0.1
	Max. rush current[A]	18
	Max. rush conductivity time[ms]	12
Max. earth leakage current[mA]		2
Braking		Regenerative braking and dynamic brakes
	Dynamic brakes	Built-in
Heating value	Inside panel[W]	27
	Outside panel[W]	87
Cooling method		Forced air cooling
Mass[kg]		3.8

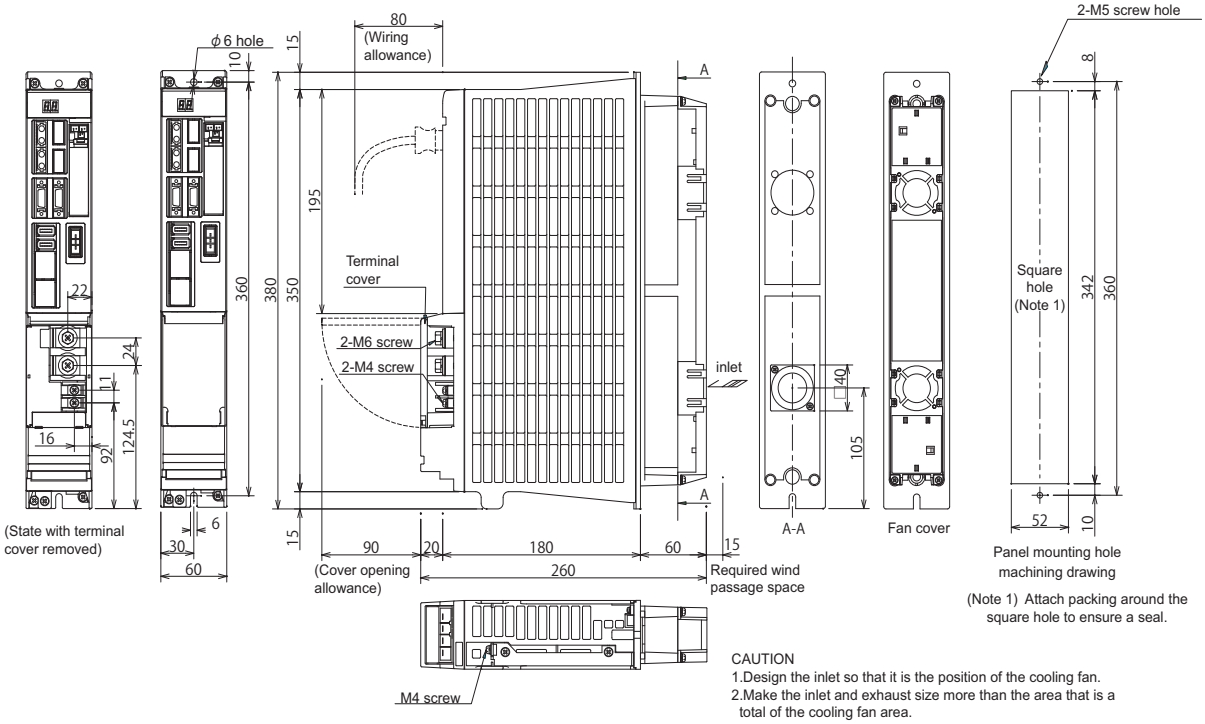
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	$4.9m/s^2$ (0.5G) / $49m/s^2$ (5G)

Recommended wire

	Terminal name					
	TE1 (U, V, W, earth)		TE2 (L+, L-)		TE3 (L11, L21, L12, L22, MC1)	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	2	14	Match with TE2 of selected power supply unit		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	2	14			2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	2	14			1.25 to 2	16 to 14

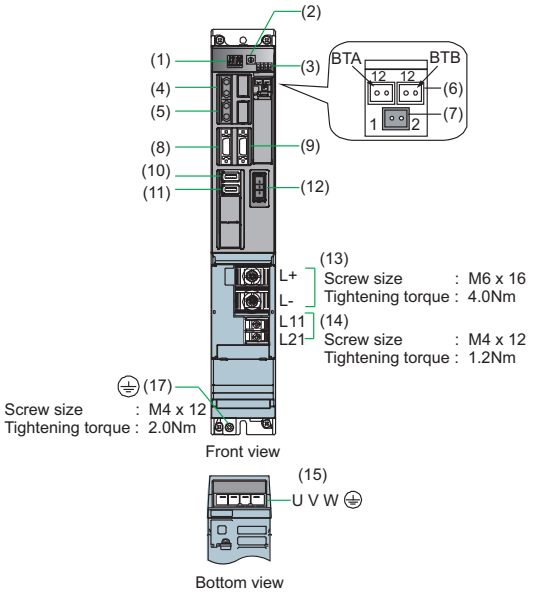
Outline dimension drawings [Unit : mm]



CAUTION
1.Design the inlet so that it is the position of the cooling fan.
2.Make the inlet and exhaust size more than the area that is a total of the cooling fan area.

Servo drive unit

MDS-DH-V1-80



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SWL	Axis No. setting switch
(3)	SW1	Unused axis setting switch
(4)	CN1A	NC or master axis optical communication connector
(5)	CN1B	Slave axis optical communication connector
(6)	BTA BTB	For connecting converged battery unit
(7)	BT1	For connecting battery built-in drive unit ER6V-C119B
(8)	CN9	(Unused)
(9)	CN4	Power supply communication connector
(10)	CN2L	Motor side encoder connection connector 5V power supply capacity: 0.35A
(11)	CN3L	Machine side encoder connection connector 5V power supply capacity: 0.35A
(12)	CN20	Motor brake/dynamic brake control connector
(13)	TE2	Main circuit power supply input terminal (DC input)
(14)	TE3	Control power input terminal (single-phase AC input)
(15)	TE1	Motor power supply output connector (3-phase AC output)
(17)	PE	Grounding terminal Note that TE1 connector is used for the motor grounding.

Specifications

Item		Specifications
Nominal maximum current(peak)[A]		80
Output	Rated voltage[V]	340AC
	Rated current[A]	17
Input	Rated voltage[V]	513 to 648DC
	Rated current[A]	6.0
Control power	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±3% max
	Voltage(50Hz)[V]	380 to 440AC
	Voltage(60Hz)[V]	380 to 480AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Max. current[A]	0.1
	Max. rush current[A]	18
	Max. rush conductivity time[ms]	12
Max. earth leakage current[mA]		2
Braking		Regenerative braking and dynamic brakes
	Dynamic brakes	Built-in
Heating value	Inside panel[W]	40
	Outside panel[W]	175
Cooling method		Forced air cooling
Mass[kg]		3.8

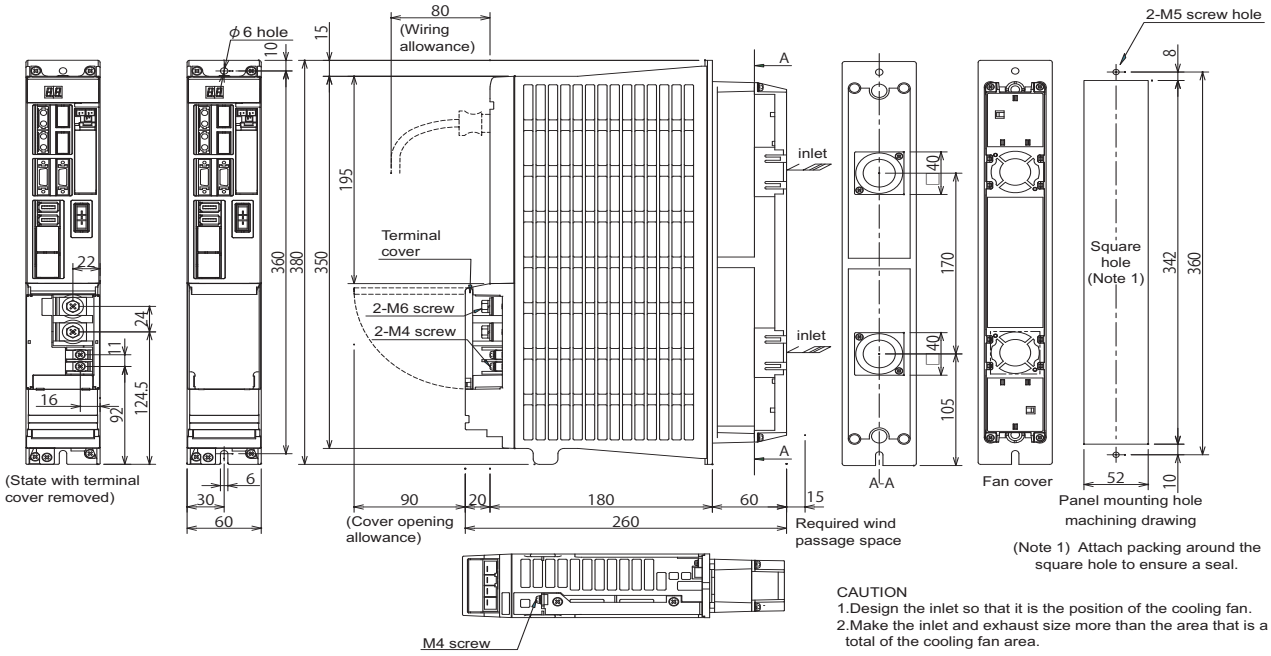
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s^2 (0.5G) / 49m/s^2 (5G)

Recommended wire

	Terminal name					
	TE1 (U, V, W, earth)		TE2 (L+, L-)		TE3 (L11, L21, L12, L22, MC1)	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	3.5	12	Match with TE2 of selected power supply unit		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	3.5	12			2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	2	14			1.25 to 2	16 to 14

Outline dimension drawings [Unit : mm]

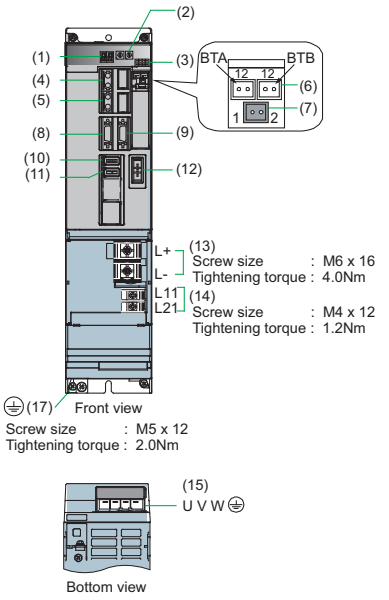


(Note 1) Attach packing around the square hole to ensure a seal.

CAUTION
1.Design the inlet so that it is the position of the cooling fan.
2.Make the inlet and exhaust size more than the area that is a total of the cooling fan area.

Servo drive unit

MDS-DH-V1-80W



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SWL	Axis No. setting switch
(3)	SW1	Unused axis setting switch
(4)	CN1A	NC or master axis optical communication connector
(5)	CN1B	Slave axis optical communication connector
(6)	BTA BTB	For connecting converged battery unit
(7)	BT1	For connecting battery built-in drive unit ER6V-C119B
(8)	CN9	(Unused)
(9)	CN4	Power supply communication connector
(10)	CN2L	Motor side encoder connection connector 5V power supply capacity: 0.35A
(11)	CN3L	Machine side encoder connection connector 5V power supply capacity: 0.35A
(12)	CN20	Motor brake/dynamic brake control connector
(13)	TE2	Main circuit power supply input terminal (DC input)
(14)	TE3	Control power input terminal (single-phase AC input)
(15)	TE1	Motor power supply output connector (3-phase AC output)
(17)	PE	Grounding terminal Note that TE1 connector is used for the motor grounding.

Specifications

Item		Specifications
Nominal maximum current(peak)[A]		80
Output	Rated voltage[V]	340AC
	Rated current[A]	20.1
Input	Rated voltage[V]	513 to 648DC
	Rated current[A]	8.0
Control power	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±3% max
	Voltage(50Hz)[V]	380 to 440AC
	Voltage(60Hz)[V]	380 to 480AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Max. current[A]	0.1
	Max. rush current[A]	18
	Max. rush conductivity time[ms]	12
Max. earth leakage current[mA]		2
Braking		Regenerative braking and dynamic brakes
	Dynamic brakes	Built-in
Heating value	Inside panel[W]	47
	Outside panel[W]	222
Cooling method		Forced air cooling
Mass[kg]		4.5

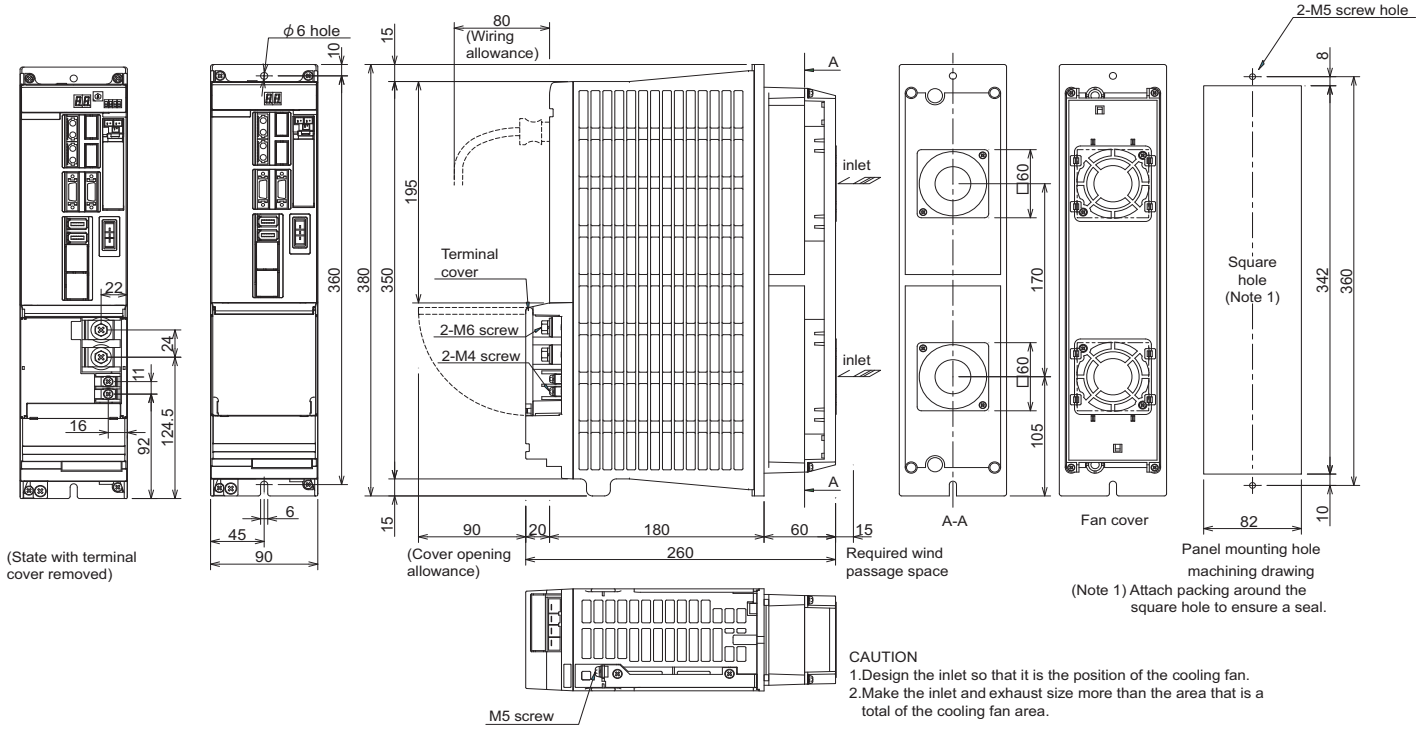
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	$4.9m/s^2$ (0.5G) / $49m/s^2$ (5G)

Recommended wire

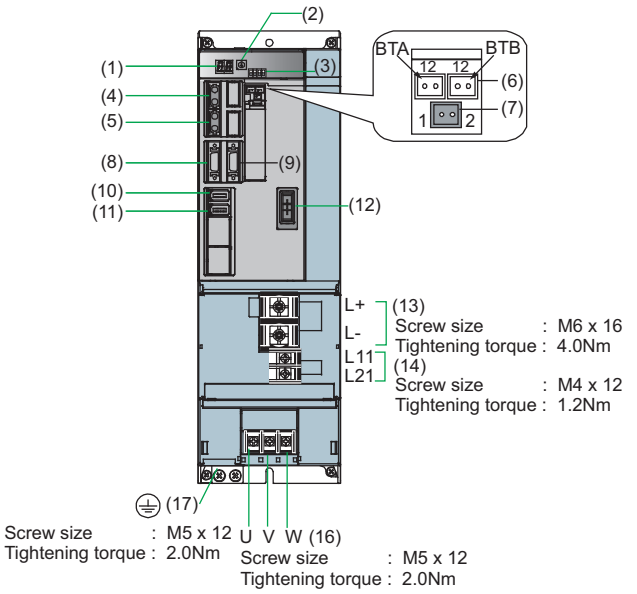
	Terminal name					
	TE1 (U, V, W, earth)		TE2 (L+, L-)		TE3 (L11, L21, L12, L22, MC1)	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	5.5	10	Match with TE2 of selected power supply unit		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	5.5	10			2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	2	14			1.25 to 2	16 to 14

Outline dimension drawings [Unit : mm]



Servo drive unit

MDS-DH-V1-160



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SWL	Axis No. setting switch
(3)	SW1	Unused axis setting switch
(4)	CN1A	NC or master axis optical communication connector
(5)	CN1B	Slave axis optical communication connector
(6)	BTA BTB	For connecting converged battery unit
(7)	BT1	For connecting battery built-in drive unit ER6V-C119B
(8)	CN9	(Unused)
(9)	CN4	Power supply communication connector
(10)	CN2L	Motor side encoder connection connector 5V power supply capacity: 0.35A
(11)	CN3L	Machine side encoder connection connector 5V power supply capacity: 0.35A
(12)	CN20	Motor brake/dynamic brake control connector
(13)	TE2	Main circuit power supply input terminal (DC input)
(14)	TE3	Control power input terminal (single-phase AC input)
(16)	TE1	Motor power supply output terminal (3-phase AC output)
(17)	PE	Grounding terminal

Specifications

Item		Specifications
Nominal maximum current(peak)[A]		160
Output	Rated voltage[V]	340AC
	Rated current[A]	32
Input	Rated voltage[V]	513 to 648DC
	Rated current[A]	11.9
Control power	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±3% max
	Voltage(50Hz)[V]	380 to 440AC
	Voltage(60Hz)[V]	380 to 480AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Max. current[A]	0.1
	Max. rush current[A]	18
	Max. rush conductivity time[ms]	12
Max. earth leakage current[mA]		2
Braking		Regenerative braking and dynamic brakes
	Dynamic brakes	Built-in
Heating value	Inside panel[W]	62
	Outside panel[W]	328
Cooling method		Forced air cooling
Mass[kg]		5.8

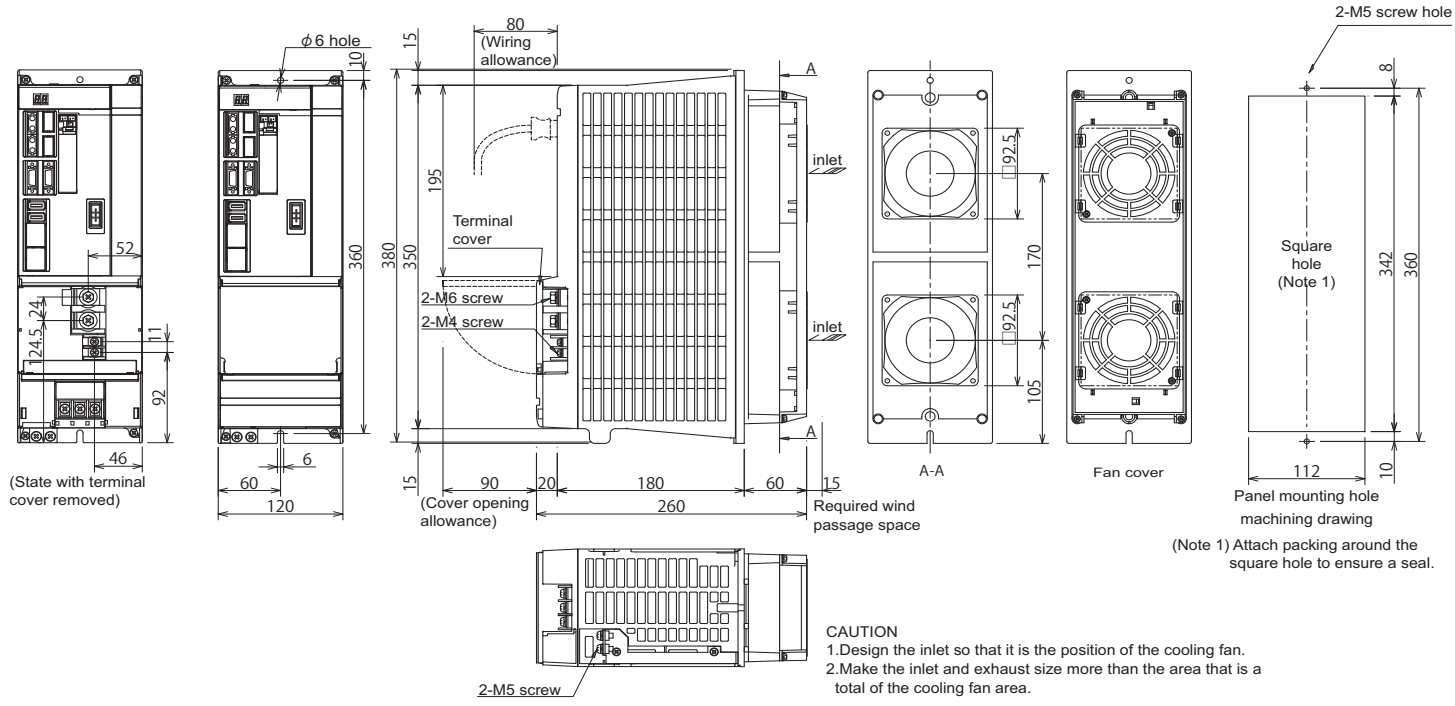
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s^2 (0.5G) / 49m/s^2 (5G)

Recommended wire

	Terminal name					
	TE1 (U, V, W, earth)		TE2 (L+, L-)		TE3 (L11, L21, L12, L22, MC1)	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	8	8	Match with TE2 of selected power supply unit		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	8	8			2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	3.5	12			1.25 to 2	16 to 14

Outline dimension drawings [Unit : mm]

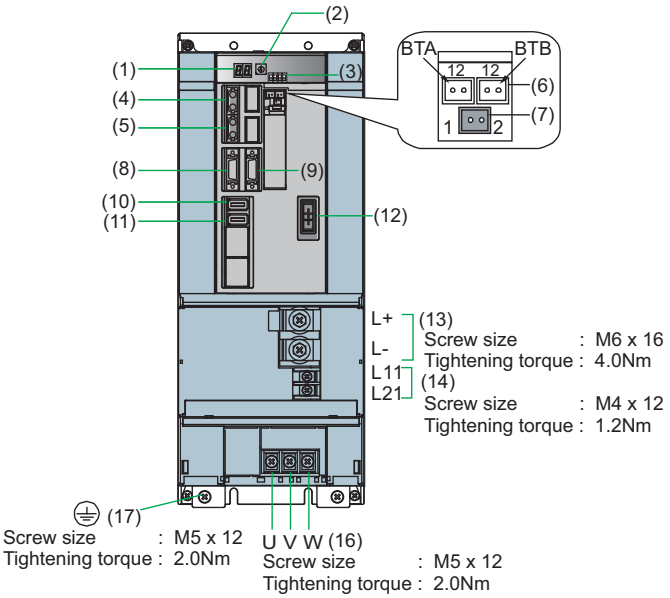


(Note 1) Attach packing around the square hole to ensure a seal.

CAUTION
1.Design the inlet so that it is the position of the cooling fan.
2.Make the inlet and exhaust size more than the area that is a total of the cooling fan area.

Servo drive unit

MDS-DH-V1-160W



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SWL	Axis No. setting switch
(3)	SW1	Unused axis setting switch
(4)	CN1A	NC or master axis optical communication connector
(5)	CN1B	Slave axis optical communication connector
(6)	BTA BTB	For connecting converged battery unit
(7)	BT1	For connecting battery built-in drive unit ER6V-C119B
(8)	CN9	(Unused)
(9)	CN4	Power supply communication connector
(10)	CN2L	Motor side encoder connection connector 5V power supply capacity: 0.35A
(11)	CN3L	Machine side encoder connection connector 5V power supply capacity: 0.35A
(12)	CN20	Motor brake/dynamic brake control connector
(13)	TE2	Main circuit power supply input terminal (DC input)
(14)	TE3	Control power input terminal (single-phase AC input)
(16)	TE1	Motor power supply output terminal (3-phase AC output)
(17)	PE	Grounding terminal

Specifications

Item		Specifications
Nominal maximum current(peak)[A]		160
Output	Rated voltage[V]	340AC
	Rated current[A]	46
Input	Rated voltage[V]	513 to 648DC
	Rated current[A]	16.7
Control power	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±3% max
	Voltage(50Hz)[V]	380 to 440AC
	Voltage(60Hz)[V]	380 to 480AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Max. current[A]	0.1
	Max. rush current[A]	18
	Max. rush conductivity time[ms]	12
Max. earth leakage current[mA]		2
Braking		Regenerative braking and dynamic brakes
	Dynamic brakes	External (MDS-D-DBU)
Heating value	Inside panel[W]	81
	Outside panel[W]	461
Cooling method		Forced air cooling
Mass[kg]		7.5

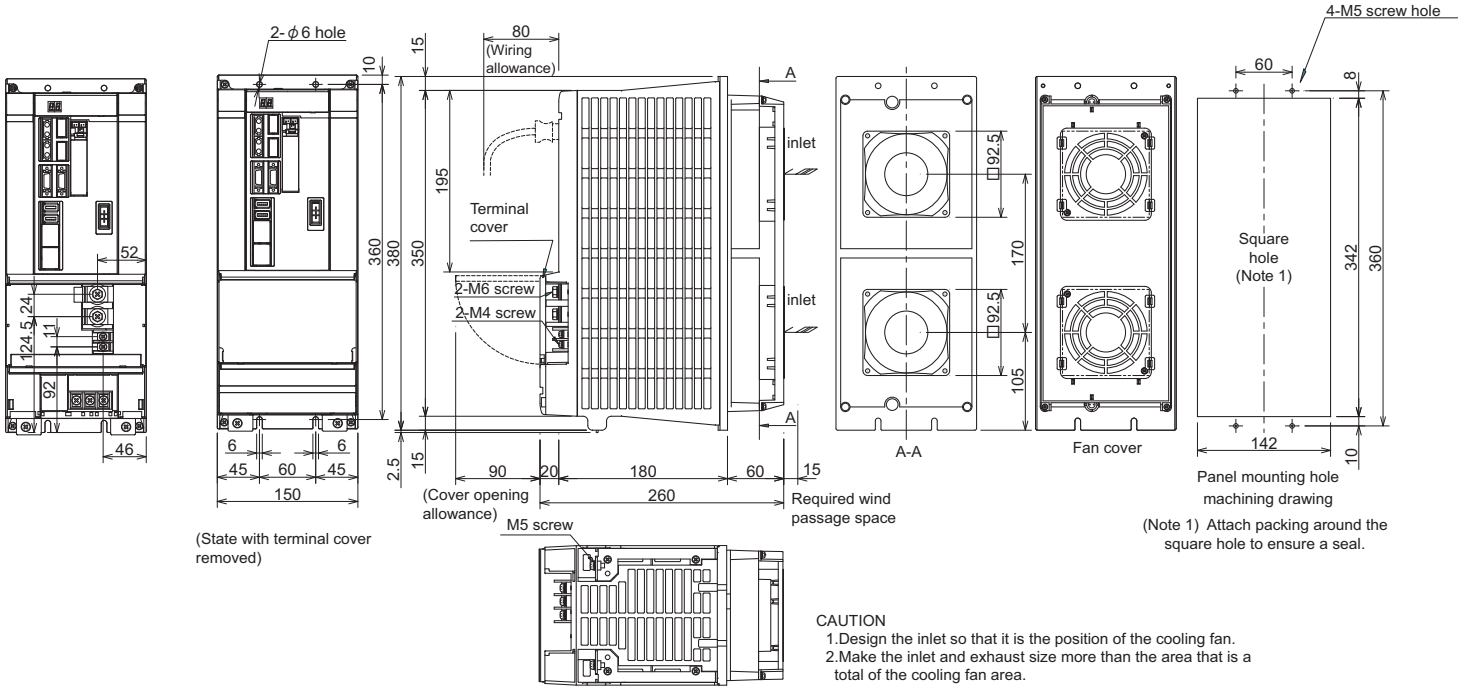
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s^2 (0.5G) / 49m/s^2 (5G)

Recommended wire

	Terminal name					
	TE1 (U, V, W, earth)		TE2 (L+, L-)		TE3 (L11, L21, L12, L22, MC1)	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	14	6	Match with TE2 of selected power supply unit		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	8	8			2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	8	8			1.25 to 2	16 to 14

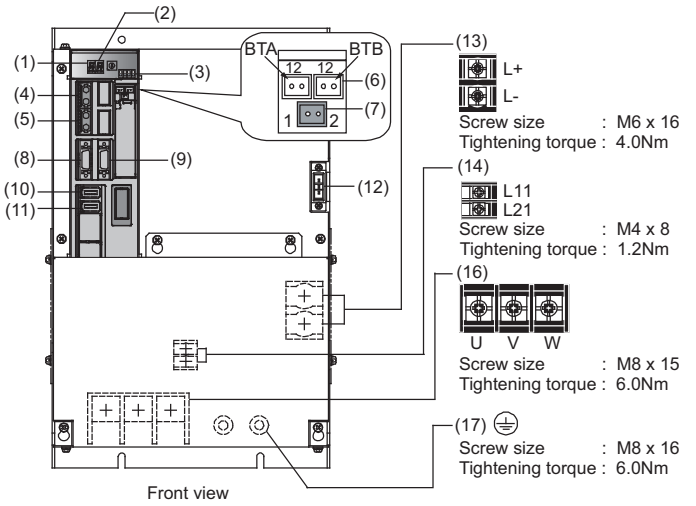
Outline dimension drawings [Unit : mm]



CAUTION
1.Design the inlet so that it is the position of the cooling fan.
2.Make the inlet and exhaust size more than the area that is a total of the cooling fan area.

Servo drive unit

MDS-DH-V1-200



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SWL	Axis No. setting switch
(3)	SW1	Unused axis setting switch
(4)	CN1A	NC or master axis optical communication connector
(5)	CN1B	Slave axis optical communication connector
(6)	BTA BTB	For connecting converged battery unit
(7)	BT1	For connecting battery built-in drive unit ER6V-C119B
(8)	CN9	(Unused)
(9)	CN4	Power supply communication connector
(10)	CN2L	Motor side encoder connection connector 5V power supply capacity: 0.35A
(11)	CN3L	Machine side encoder connection connector 5V power supply capacity: 0.35A
(12)	CN20	Motor brake/dynamic brake control connector
(13)	TE2	Main circuit power supply input terminal (DC input)
(14)	TE3	Control power input terminal (single-phase AC input)
(16)	TE1	Motor power supply output terminal (3-phase AC output)
(17)	PE	Grounding terminal

Specifications

Item		Specifications
Nominal maximum current(peak)[A]		200
Output	Rated voltage[V]	340AC
	Rated current[A]	76.8
Input	Rated voltage[V]	513 to 648DC
	Rated current[A]	39
Control power	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±3% max
	Voltage(50Hz)[V]	380 to 440AC
	Voltage(60Hz)[V]	380 to 480AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Max. current[A]	0.1
	Max. rush current[A]	18
	Max. rush conductivity time[ms]	18
Max. earth leakage current[mA]		2
Braking		Regenerative braking and dynamic brakes
	Dynamic brakes	External (MDS-D-DBU)
Heating value	Inside panel[W]	105
	Outside panel[W]	630
Cooling method		Forced air cooling
Mass[kg]		16.5

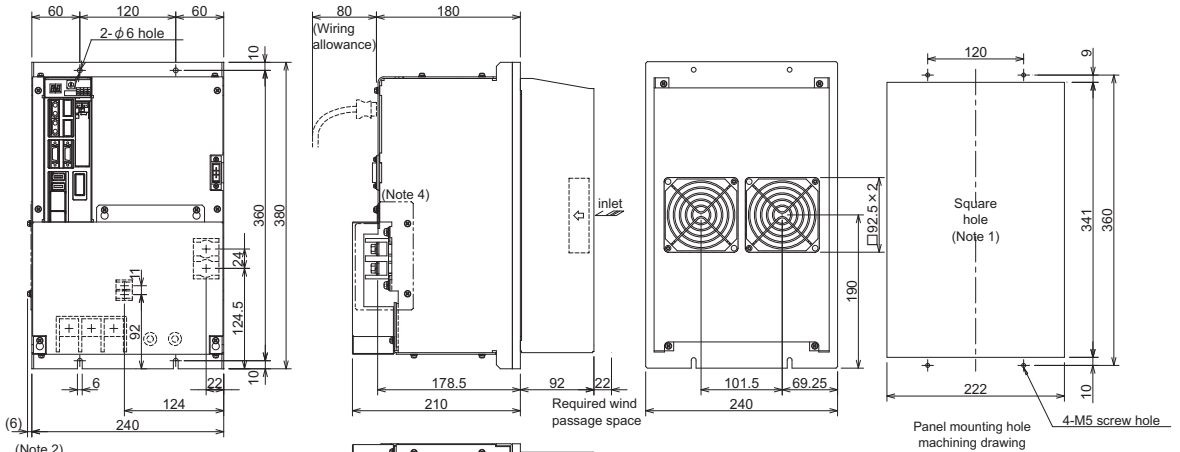
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s^2 (0.5G) / 49m/s^2 (5G)

Recommended wire

	Terminal name					
	TE1 (U, V, W, earth)		TE2 (L+, L-)		TE3 (L11, L21, L12, L22, MC1)	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	38	2	Match with TE2 of selected power supply unit		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	22	4			2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	14	6			1.25 to 2	16 to 14

Outline dimension drawings [Unit : mm]

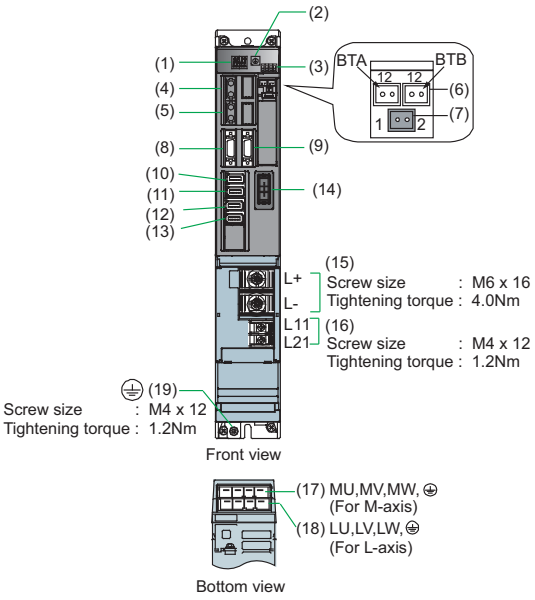


(Note 1) Attach packing around the square hole to ensure a seal.
(Note 2) This dimension is applied when the side protection cover is installed.
When installing the drive unit of the same series next, the side protecton cover in installation side is not required.
(Note 3) DC connection bar is required.
Always install a lage capacity drive unit in the left side of power supply unit,and connect with DC connection bar.
When installing the drive unit of the same series next, the Side protection cover in installation side is not required.
(Note 4) The side protection cover is attached to the left side of the unit.

CAUTION
1.Design the inlet so that it is the position of the cooling fan.
2.Make the inlet and exhaust size more than the area that is a total of the cooling fan area.

Servo drive unit

MDS-DH-V2-1010



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SWL SWM	Axis No. setting switch
(3)	SW1	Unused axis setting switch
(4)	CN1A	NC or master axis optical communication connector
(5)	CN1B	Slave axis optical communication connector
(6)	BTA BTB	For connecting converged battery unit
(7)	BT1	For connecting battery built-in drive unit ER6V-C119B
(8)	CN9	(Unused)
(9)	CN4	Power supply communication connector
(10)	CN2L	Motor side encoder connection connector (L-axis) 5V power supply capacity: 0.35A
(11)	CN3L	Machine side encoder connection connector (L-axis) 5V power supply capacity: 0.35A
(12)	CN2M	Motor side encoder connection connector (M-axis) 5V power supply capacity: 0.35A
(13)	CN3M	Machine side encoder connection connector (M-axis) 5V power supply capacity: 0.35A
(14)	CN20	Motor brake/dynamic brake control connector (Key way: X type)
(15)	TE2	Main circuit power supply input terminal (DC input)
(16)	TE3	Control power input terminal (single-phase AC input)
(17)	TE1	Motor power supply output connector (M-axis, 3-phase AC output)
(18)		Motor power supply output connector (L-axis, 3-phase AC output)
(19)	PE	Grounding terminal Note that TE1 connector is used for the motor grounding .

Specifications

Item		Specifications	
		L	M
Nominal maximum current(peak)[A]		10	10
Output	Rated voltage[V]	340AC	
	Rated current[A]	2.3	2.3
Input	Rated voltage[V]	513 to 648DC	
	Rated current[A]	1.8	
Control power	Frequency[Hz]	50 / 60	
	Tolerable frequency fluctuation[%]	±3% max	
	Voltage(50Hz)[V]	380 to 440AC	
	Voltage(60Hz)[V]	380 to 480AC	
	Tolerable voltage fluctuation[%]	+10%, -15%	
	Max. current[A]	0.1	
	Max. rush current[A]	18	
	Max. rush conductivity time[ms]	12	
Max. earth leakage current[mA]		2	2
Braking		Regenerative braking and dynamic brakes	
	Dynamic brakes	Built-in	
Heating value	Inside panel[W]	28	
	Outside panel[W]	54	
Cooling method		Forced air cooling	
Mass[kg]		3.8	

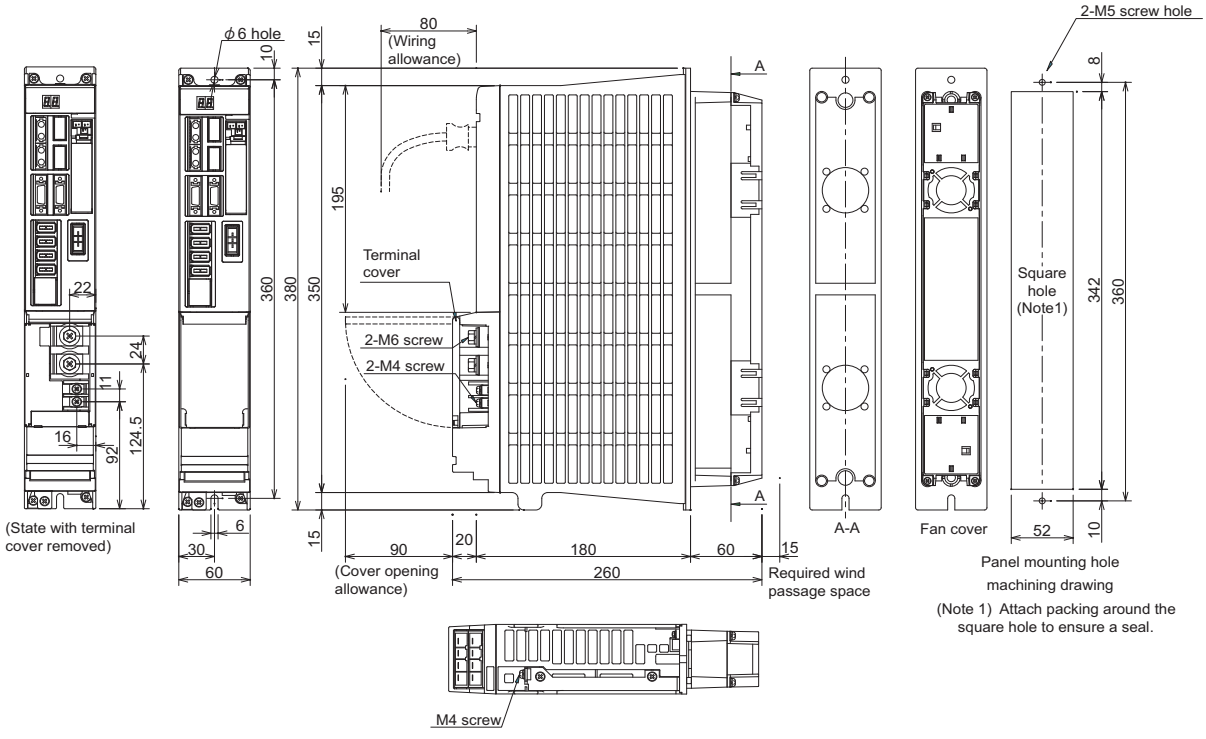
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s^2 (0.5G) / 49m/s^2 (5G)

Recommended wire

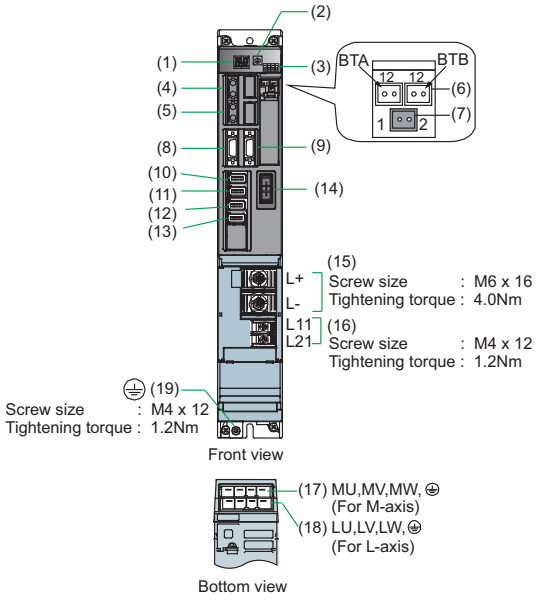
	Terminal name					
	TE1 (U, V, W, earth) The values inside of ( ) are M side		TE2 (L+, L-)		TE3 (L11, L21, L12, L22, MC1)	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	2 (2)	14 (14)	Match with TE2 of selected power supply unit		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	2 (2)	14 (14)			2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	2 (2)	14 (14)			1.25 to 2	16 to 14

Outline dimension drawings [Unit : mm]



Servo drive unit

MDS-DH-V2-2010



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SWL SWM	Axis No. setting switch
(3)	SW1	Unused axis setting switch
(4)	CN1A	NC or master axis optical communication connector
(5)	CN1B	Slave axis optical communication connector
(6)	BTA BTB	For connecting converged battery unit
(7)	BT1	For connecting battery built-in drive unit ER6V-C119B
(8)	CN9	(Unused)
(9)	CN4	Power supply communication connector
(10)	CN2L	Motor side encoder connection connector (L-axis) 5V power supply capacity: 0.35A
(11)	CN3L	Machine side encoder connection connector (L-axis) 5V power supply capacity: 0.35A
(12)	CN2M	Motor side encoder connection connector (M-axis) 5V power supply capacity: 0.35A
(13)	CN3M	Machine side encoder connection connector (M-axis) 5V power supply capacity: 0.35A
(14)	CN20	Motor brake/dynamic brake control connector (Key way: X type)
(15)	TE2	Main circuit power supply input terminal (DC input)
(16)	TE3	Control power input terminal (single-phase AC input)
(17)	TE1	Motor power supply output connector (M-axis, 3-phase AC output)
(18)		Motor power supply output connector (L-axis, 3-phase AC output)
(19)	PE	Grounding terminal Note that TE1 connector is used for the motor grounding .

Specifications

Item		Specifications	
		L	M
Nominal maximum current(peak)[A]		20	10
Output	Rated voltage[V]	340AC	
	Rated current[A]	3.9	2.3
Input	Rated voltage[V]	513 to 648DC	
	Rated current[A]	2.5	
Control power	Frequency[Hz]	50 / 60	
	Tolerable frequency fluctuation[%]	±3% max	
	Voltage(50Hz)[V]	380 to 440AC	
	Voltage(60Hz)[V]	380 to 480AC	
	Tolerable voltage fluctuation[%]	+10%, -15%	
	Max. current[A]	0.1	
	Max. rush current[A]	18	
	Max. rush conductivity time[ms]	12	
Max. earth leakage current[mA]		2	2
Braking		Regenerative braking and dynamic brakes	
	Dynamic brakes	Built-in	
Heating value	Inside panel[W]	30	
	Outside panel[W]	74	
Cooling method		Forced air cooling	
Mass[kg]		3.8	

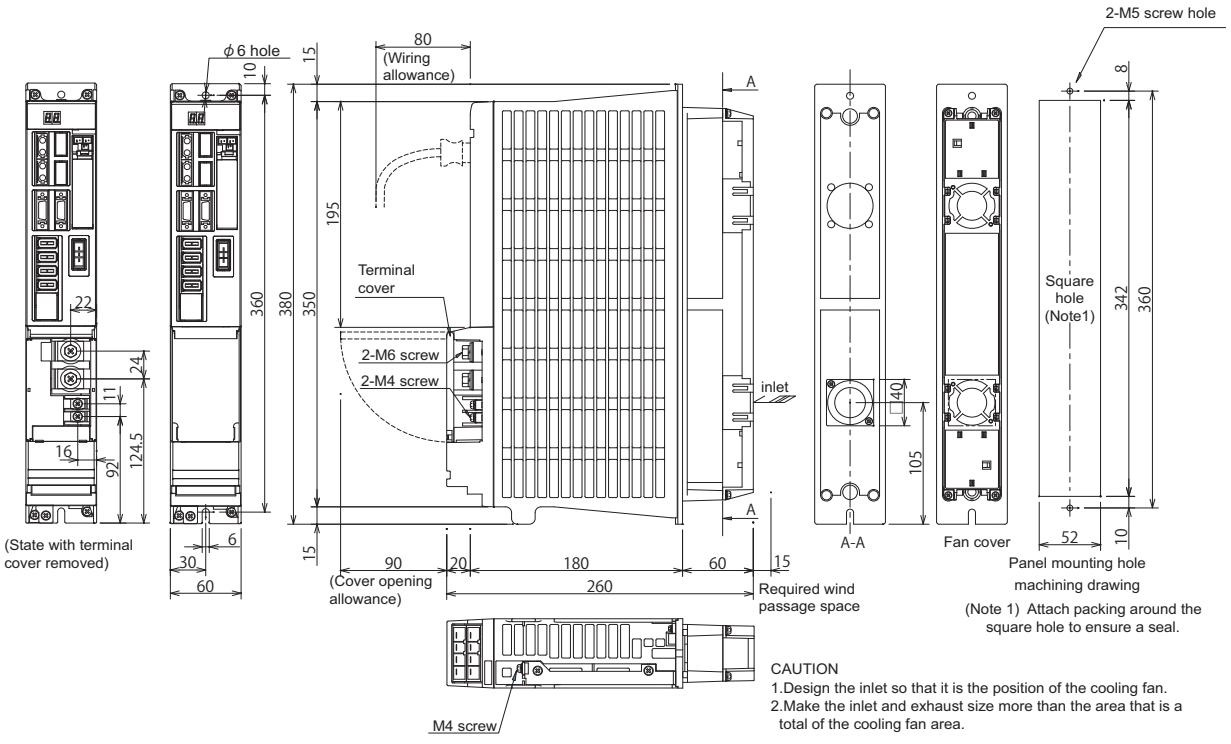
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s^2 (0.5G) / 49m/s^2 (5G)

Recommended wire

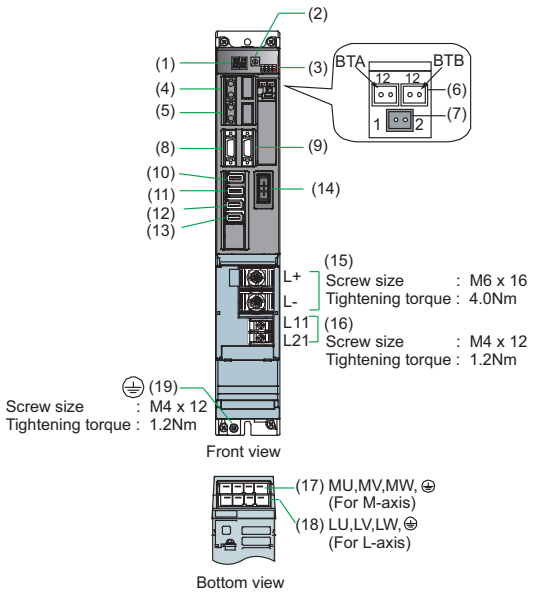
	Terminal name					
	TE1 (U, V, W, earth) The values inside of ( ) are M side		TE2 (L+, L-)		TE3 (L11, L21, L12, L22, MC1)	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	2 (2)	14 (14)	Match with TE2 of selected power supply unit		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	2 (2)	14 (14)			2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	2 (2)	14 (14)			1.25 to 2	16 to 14

Outline dimension drawings [Unit : mm]



Servo drive unit

MDS-DH-V2-2020



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SWL SWM	Axis No. setting switch
(3)	SW1	Unused axis setting switch
(4)	CN1A	NC or master axis optical communication connector
(5)	CN1B	Slave axis optical communication connector
(6)	BTA BTB	For connecting converged battery unit
(7)	BT1	For connecting battery built-in drive unit ER6V-C119B
(8)	CN9	(Unused)
(9)	CN4	Power supply communication connector
(10)	CN2L	Motor side encoder connection connector (L-axis) 5V power supply capacity: 0.35A
(11)	CN3L	Machine side encoder connection connector (L-axis) 5V power supply capacity: 0.35A
(12)	CN2M	Motor side encoder connection connector (M-axis) 5V power supply capacity: 0.35A
(13)	CN3M	Machine side encoder connection connector (M-axis) 5V power supply capacity: 0.35A
(14)	CN20	Motor brake/dynamic brake control connector (Key way: X type)
(15)	TE2	Main circuit power supply input terminal (DC input)
(16)	TE3	Control power input terminal (single-phase AC input)
(17)	TE1	Motor power supply output connector (M-axis, 3-phase AC output)
(18)		Motor power supply output connector (L-axis, 3-phase AC output)
(19)	PE	Grounding terminal Note that TE1 connector is used for the motor grounding .

Specifications

Item		Specifications	
		L	M
Nominal maximum current(peak)[A]		20	20
Output	Rated voltage[V]	340AC	
	Rated current[A]	3.9	3.9
Input	Rated voltage[V]	513 to 648DC	
	Rated current[A]	3.2	
Control power	Frequency[Hz]	50 / 60	
	Tolerable frequency fluctuation[%]	±3% max	
	Voltage(50Hz)[V]	380 to 440AC	
	Voltage(60Hz)[V]	380 to 480AC	
	Tolerable voltage fluctuation[%]	+10%, -15%	
	Max. current[A]	0.1	
	Max. rush current[A]	18	
	Max. rush conductivity time[ms]	12	
Max. earth leakage current[mA]		2	2
Braking		Regenerative braking and dynamic brakes	
	Dynamic brakes	Built-in	
Heating value	Inside panel[W]	33	
	Outside panel[W]	93	
Cooling method		Forced air cooling	
Mass[kg]		3.8	

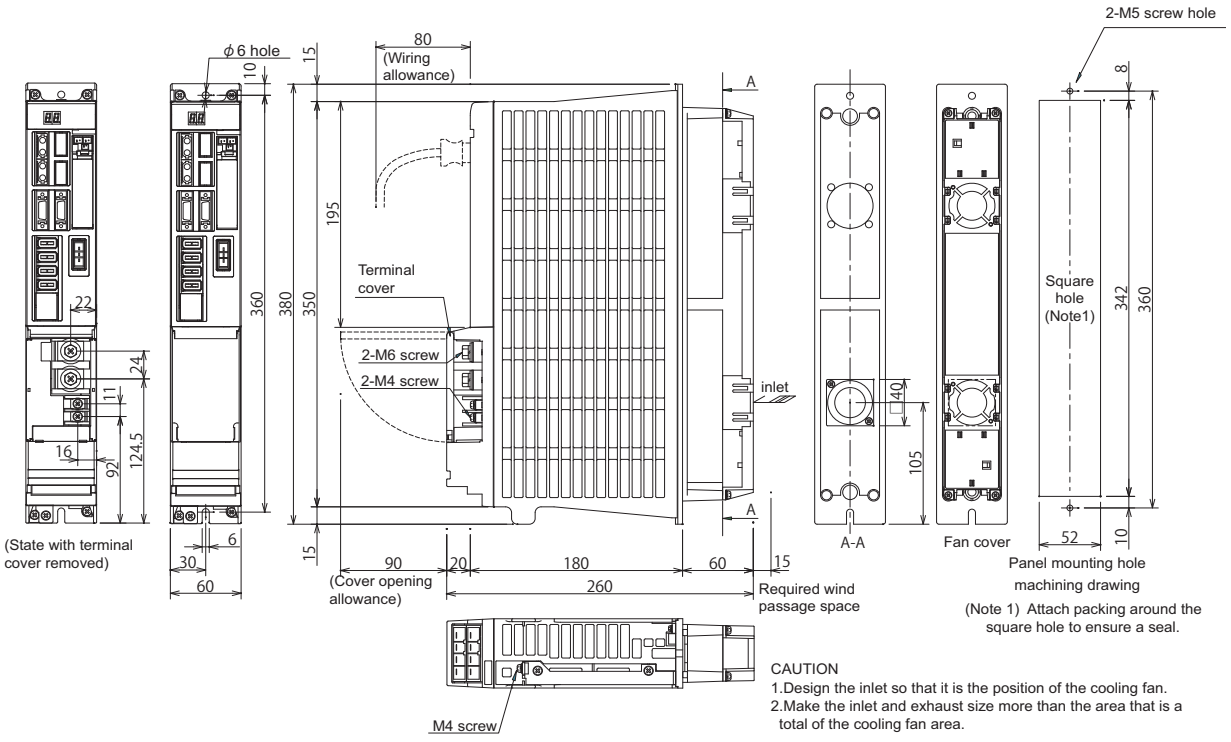
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s^2 (0.5G) / 49m/s^2 (5G)

Recommended wire

	Terminal name					
	TE1 (U, V, W, earth) The values inside of ( ) are M side		TE2 (L+, L-)		TE3 (L11, L21, L12, L22, MC1)	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	2 (2)	14 (14)	Match with TE2 of selected power supply unit		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	2 (2)	14 (14)			2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	2 (2)	14 (14)			1.25 to 2	16 to 14

Outline dimension drawings [Unit : mm]

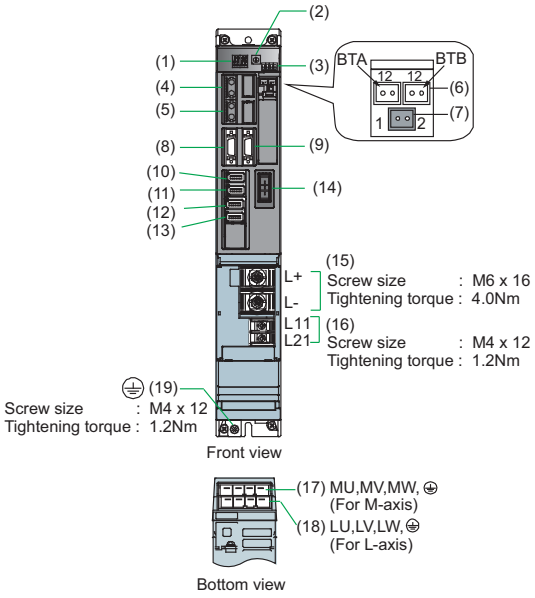


(Note 1) Attach packing around the square hole to ensure a seal.

CAUTION
1.Design the inlet so that it is the position of the cooling fan.
2.Make the inlet and exhaust size more than the area that is a total of the cooling fan area.

Servo drive unit

MDS-DH-V2-4020



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SWL SWM	Axis No. setting switch
(3)	SW1	Unused axis setting switch
(4)	CN1A	NC or master axis optical communication connector
(5)	CN1B	Slave axis optical communication connector
(6)	BTA BTB	For connecting converged battery unit
(7)	BT1	For connecting battery built-in drive unit ER6V-C119B
(8)	CN9	(Unused)
(9)	CN4	Power supply communication connector
(10)	CN2L	Motor side encoder connection connector (L axis) 5V power supply capacity: 0.35A
(11)	CN3L	Machine side encoder connection connector (L axis) 5V power supply capacity: 0.35A
(12)	CN2M	Motor side encoder connection connector (M axis) 5V power supply capacity: 0.35A
(13)	CN3M	Machine side encoder connection connector (M axis) 5V power supply capacity: 0.35A
(14)	CN20	Motor brake/dynamic brake control connector (Key way: X type)
(15)	TE2	Main circuit power supply input terminal (DC input)
(16)	TE3	Control power input terminal (single-phase AC input)
(17)	TE1	Motor power supply output connector (M-axis, 3-phase AC output)
(18)		Motor power supply output connector (L-axis, 3-phase AC output)
(19)	PE	Grounding terminal Note that TE1 connector is used for the motor grounding .

Specifications

Item		Specifications	
		L	M
Nominal maximum current(peak)[A]		40	20
Output	Rated voltage[V]	340AC	
	Rated current[A]	7.3	3.9
Input	Rated voltage[V]	513 to 648DC	
	Rated current[A]	4.5	
Control power	Frequency[Hz]	50 / 60	
	Tolerable frequency fluctuation[%]	±3% max	
	Voltage(50Hz)[V]	380 to 440AC	
	Voltage(60Hz)[V]	380 to 480AC	
	Tolerable voltage fluctuation[%]	+10%, -15%	
	Max. current[A]	0.1	
	Max. rush current[A]	18	
	Max. rush conductivity time[ms]	12	
Max. earth leakage current[mA]		2	2
Braking		Regenerative braking and dynamic brakes	
	Dynamic brakes	Built-in	
Heating value	Inside panel[W]	39	
	Outside panel[W]	133	
Cooling method		Forced air cooling	
Mass[kg]		3.8	

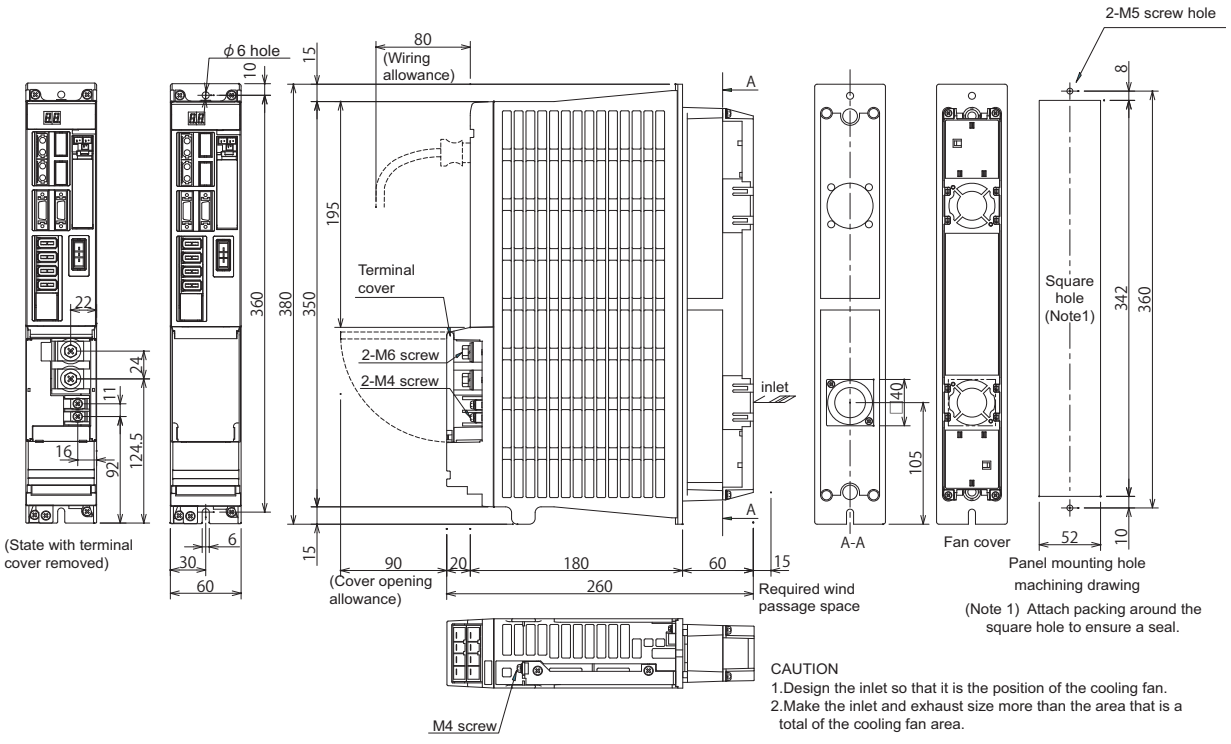
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s^2 (0.5G) / 49m/s^2 (5G)

Recommended wire

	Terminal name					
	TE1 (U, V, W, earth) The values inside of ( ) are M side		TE2 (L+, L-)		TE3 (L11, L21, L12, L22, MC1)	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	2 (2)	14 (14)	Match with TE2 of selected power supply unit		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	2 (2)	14 (14)			2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	2 (2)	14 (14)			1.25 to 2	16 to 14

Outline dimension drawings [Unit : mm]

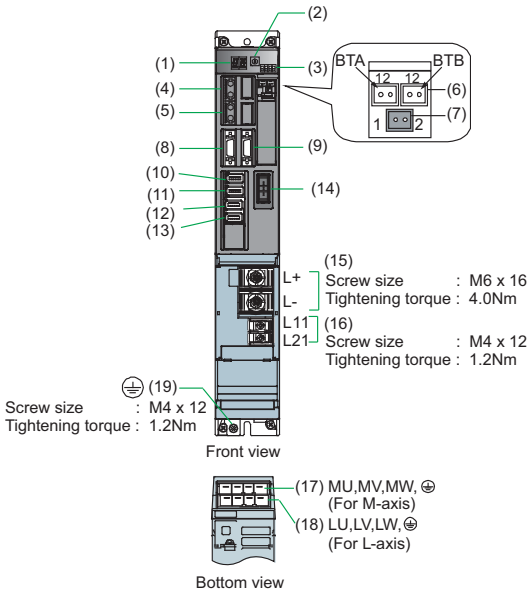


(Note 1) Attach packing around the square hole to ensure a seal.

CAUTION
1.Design the inlet so that it is the position of the cooling fan.
2.Make the inlet and exhaust size more than the area that is a total of the cooling fan area.

Servo drive unit

MDS-DH-V2-4040



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SWL SWM	Axis No. setting switch
(3)	SW1	Unused axis setting switch
(4)	CN1A	NC or master axis optical communication connector
(5)	CN1B	Slave axis optical communication connector
(6)	BTA BTB	For connecting converged battery unit
(7)	BT1	For connecting battery built-in drive unit ER6V-C119B
(8)	CN9	(Unused)
(9)	CN4	Power supply communication connector
(10)	CN2L	Motor side encoder connection connector (L-axis) 5V power supply capacity: 0.35A
(11)	CN3L	Machine side encoder connection connector (L-axis) 5V power supply capacity: 0.35A
(12)	CN2M	Motor side encoder connection connector (M-axis) 5V power supply capacity: 0.35A
(13)	CN3M	Machine side encoder connection connector (M-axis) 5V power supply capacity: 0.35A
(14)	CN20	Motor brake/dynamic brake control connector (Key way: X type)
(15)	TE2	Main circuit power supply input terminal (DC input)
(16)	TE3	Control power input terminal (single-phase AC input)
(17)	TE1	Motor power supply output connector (M-axis, 3-phase AC output)
(18)		Motor power supply output connector (L-axis, 3-phase AC output)
(19)	PE	Grounding terminal Note that TE1 connector is used for the motor grounding .

Specifications

Item		Specifications	
		L	M
Nominal maximum current(peak)[A]		40	40
Output	Rated voltage[V]	340AC	
	Rated current[A]	7.3	7.3
Input	Rated voltage[V]	513 to 648DC	
	Rated current[A]	5.8	
Control power	Frequency[Hz]	50 / 60	
	Tolerable frequency fluctuation[%]	±3% max	
	Voltage(50Hz)[V]	380 to 440AC	
	Voltage(60Hz)[V]	380 to 480AC	
	Tolerable voltage fluctuation[%]	+10%, -15%	
	Max. current[A]	0.1	
	Max. rush current[A]	18	
	Max. rush conductivity time[ms]	12	
Max. earth leakage current[mA]		2	2
Braking		Regenerative braking and dynamic brakes	
	Dynamic brakes	Built-in	
Heating value	Inside panel[W]	45	
	Outside panel[W]	173	
Cooling method		Forced air cooling	
Mass[kg]		3.8	

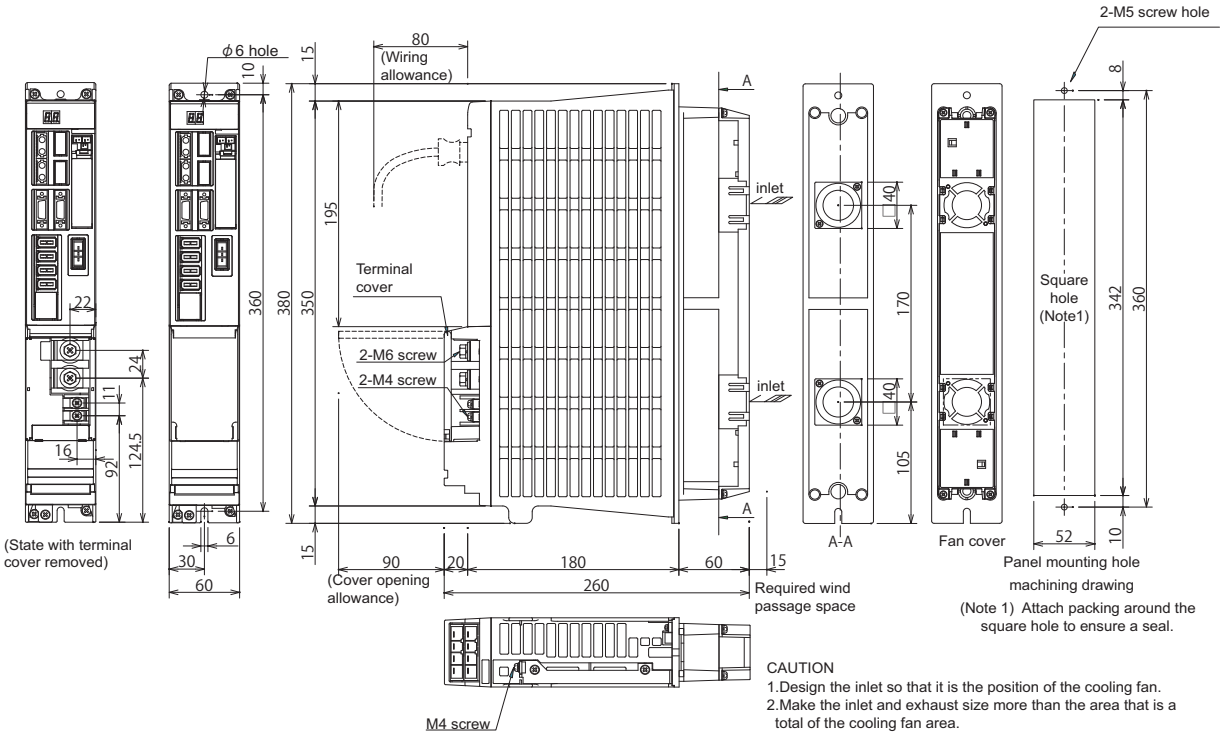
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s^2 (0.5G) / 49m/s^2 (5G)

Recommended wire

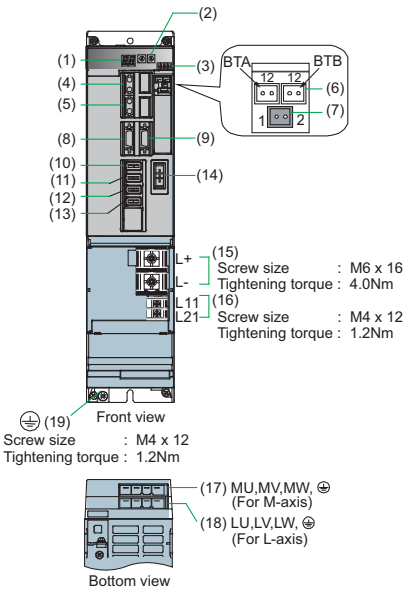
	Terminal name					
	TE1 (U, V, W, earth) The values inside of ( ) are M side		TE2 (L+, L-)		TE3 (L11, L21, L12, L22, MC1)	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	2 (2)	14 (14)	Match with TE2 of selected power supply unit		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	2 (2)	14 (14)			2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	2 (2)	14 (14)			1.25 to 2	16 to 14

Outline dimension drawings [Unit : mm]



Servo drive unit

MDS-DH-V2-8040



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SWL SWM	Axis No. setting switch
(3)	SW1	Unused axis setting switch
(4)	CN1A	NC or master axis optical communication connector
(5)	CN1B	Slave axis optical communication connector
(6)	BTA BTB	For connecting converged battery unit
(7)	BT1	For connecting battery built-in drive unit ER6V-C119B
(8)	CN9	(Unused)
(9)	CN4	Power supply communication connector
(10)	CN2L	Motor side encoder connection connector (L-axis) 5V power supply capacity: 0.35A
(11)	CN3L	Machine side encoder connection connector (L-axis) 5V power supply capacity: 0.35A
(12)	CN2M	Motor side encoder connection connector (M-axis) 5V power supply capacity: 0.35A
(13)	CN3M	Machine side encoder connection connector (M-axis) 5V power supply capacity: 0.35A
(14)	CN20	Motor brake/dynamic brake control connector (Key way: X type)
(15)	TE2	Main circuit power supply input terminal (DC input)
(16)	TE3	Control power input terminal (single-phase AC input)
(17)	TE1	Motor power supply output connector (M-axis, 3-phase AC output)
(18)		Motor power supply output connector (L-axis, 3-phase AC output)
(19)	PE	Grounding terminal Note that TE1 connector is used for the motor grounding .

Specifications

Item		Specifications	
		L	M
Nominal maximum current(peak)[A]		80	40
Output	Rated voltage[V]	340AC	
	Rated current[A]	17	7.3
Input	Rated voltage[V]	513 to 648DC	
	Rated current[A]	8.9	
Control power	Frequency[Hz]	50 / 60	
	Tolerable frequency fluctuation[%]	±3% max	
	Voltage(50Hz)[V]	380 to 440AC	
	Voltage(60Hz)[V]	380 to 480AC	
	Tolerable voltage fluctuation[%]	+10%, -15%	
	Max. current[A]	0.1	
	Max. rush current[A]	18	
	Max. rush conductivity time[ms]	12	
Max. earth leakage current[mA]		2	2
Braking		Regenerative braking and dynamic brakes	
	Dynamic brakes	Built-in	
Heating value	Inside panel[W]	57	
	Outside panel[W]	262	
Cooling method		Forced air cooling	
Mass[kg]		5.2	

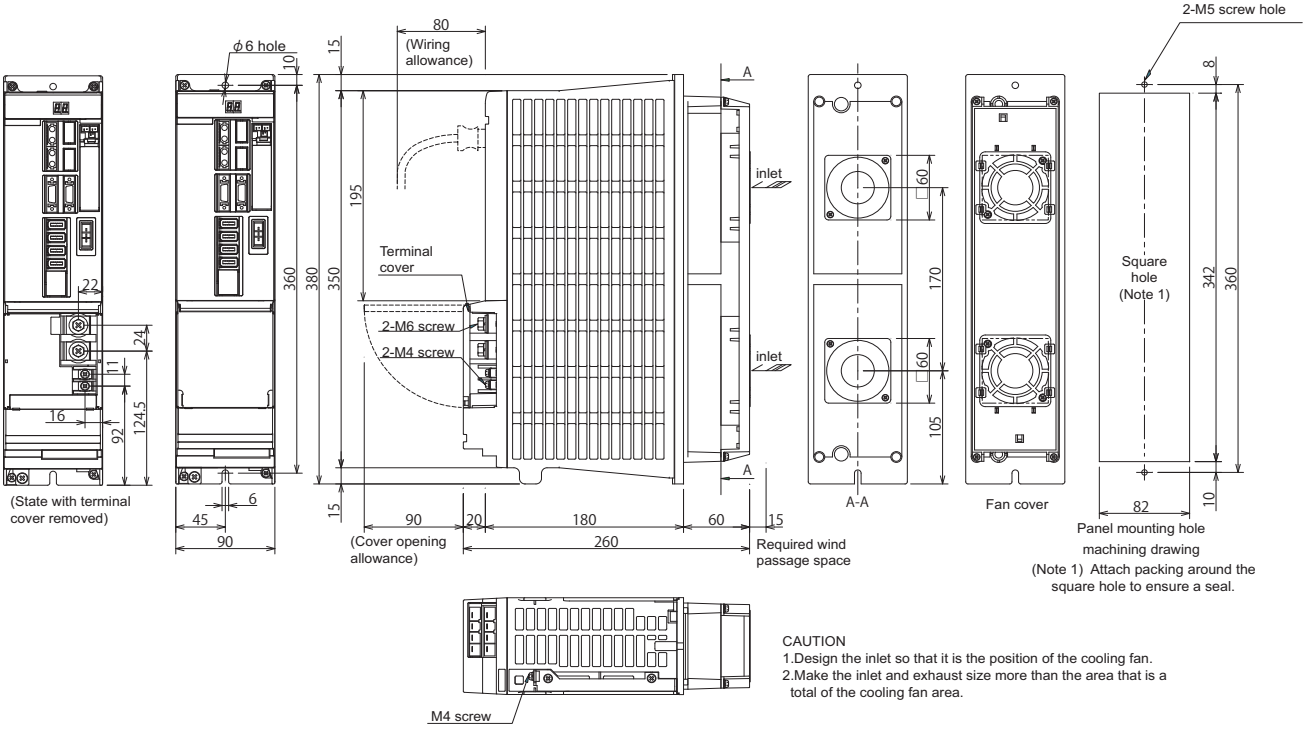
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	$4.9m/s^2$ (0.5G) / $49m/s^2$ (5G)

Recommended wire

	Terminal name					
	TE1 (U, V, W, earth) The values inside of ( ) are M side		TE2 (L+, L-)		TE3 (L11, L21, L12, L22, MC1)	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	3.5 (2)	12 (14)	Match with TE2 of selected power supply unit		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	3.5 (2)	12 (14)			2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	2 (2)	14 (14)			1.25 to 2	16 to 14

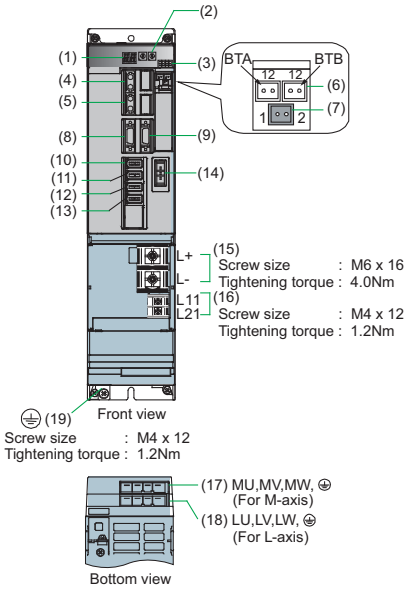
Outline dimension drawings [Unit : mm]



CAUTION
1.Design the inlet so that it is the position of the cooling fan.
2.Make the inlet and exhaust size more than the area that is a total of the cooling fan area.

Servo drive unit

MDS-DH-V2-8080



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SWL SWM	Axis No. setting switch
(3)	SW1	Unused axis setting switch
(4)	CN1A	NC or master axis optical communication connector
(5)	CN1B	Slave axis optical communication connector
(6)	BTA BTB	For connecting converged battery unit
(7)	BT1	For connecting battery built-in drive unit ER6V-C119B
(8)	CN9	(Unused)
(9)	CN4	Power supply communication connector
(10)	CN2L	Motor side encoder connection connector (L-axis) 5V power supply capacity: 0.35A
(11)	CN3L	Machine side encoder connection connector (L-axis) 5V power supply capacity: 0.35A
(12)	CN2M	Motor side encoder connection connector (M-axis) 5V power supply capacity: 0.35A
(13)	CN3M	Machine side encoder connection connector (M-axis) 5V power supply capacity: 0.35A
(14)	CN20	Motor brake/dynamic brake control connector (Key way: X type)
(15)	TE2	Main circuit power supply input terminal (DC input)
(16)	TE3	Control power input terminal (single-phase AC input)
(17)	TE1	Motor power supply output connector (M-axis, 3-phase AC output)
(18)		Motor power supply output connector (L-axis, 3-phase AC output)
(19)	PE	Grounding terminal Note that TE1 connector is used for the motor grounding .

Specifications

Item		Specifications	
		L	M
Nominal maximum current(peak)[A]		80	80
Output	Rated voltage[V]	340AC	
	Rated current[A]	17	17
Input	Rated voltage[V]	513 to 648DC	
	Rated current[A]	12	
Control power	Frequency[Hz]	50 / 60	
	Tolerable frequency fluctuation[%]	±3% max	
	Voltage(50Hz)[V]	380 to 440AC	
	Voltage(60Hz)[V]	380 to 480AC	
	Tolerable voltage fluctuation[%]	+10%, -15%	
	Max. current[A]	0.1	
	Max. rush current[A]	18	
	Max. rush conductivity time[ms]	12	
Max. earth leakage current[mA]		2	2
Braking		Regenerative braking and dynamic brakes	
	Dynamic brakes	Built-in	
Heating value	Inside panel[W]	70	
	Outside panel[W]	350	
Cooling method		Forced air cooling	
Mass[kg]		5.2	

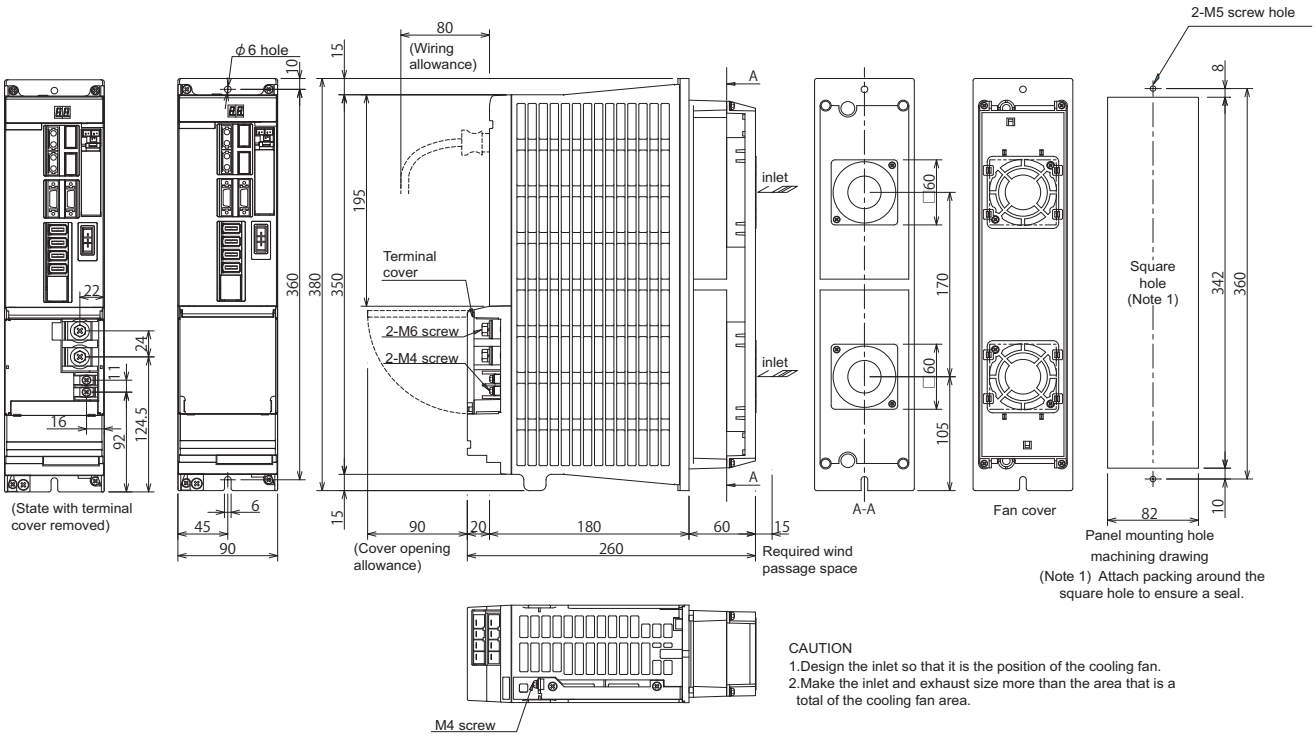
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s^2 (0.5G) / 49m/s^2 (5G)

Recommended wire

	Terminal name					
	TE1 (U, V, W, earth) The values inside of ( ) are M side		TE2 (L+, L-)		TE3 (L11, L21, L12, L22, MC1)	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	3.5 (3.5)	12 (12)	Match with TE2 of selected power supply unit		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	3.5 (3.5)	12 (12)			2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	2 (2)	14 (14)			1.25 to 2	16 to 14

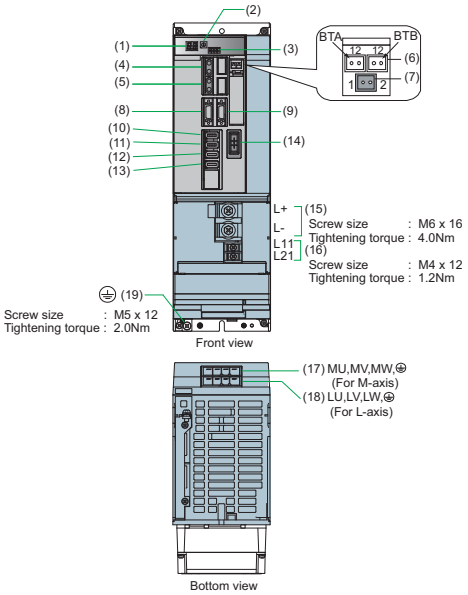
Outline dimension drawings [Unit : mm]



CAUTION
1.Design the inlet so that it is the position of the cooling fan.
2.Make the inlet and exhaust size more than the area that is a total of the cooling fan area.

Servo drive unit

MDS-DH-V2-8080W



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SWL SWM	Axis No. setting switch
(3)	SW1	Unused axis setting switch
(4)	CN1A	NC or master axis optical communication connector
(5)	CN1B	Slave axis optical communication connector
(6)	BTA BTB	For connecting converged battery unit
(7)	BT1	For connecting battery built-in drive unit ER6V-C119B
(8)	CN9	(Unused)
(9)	CN4	Power supply communication connector
(10)	CN2L	Motor side encoder connection connector (L-axis) 5V power supply capacity: 0.35A
(11)	CN3L	Machine side encoder connection connector (L-axis) 5V power supply capacity: 0.35A
(12)	CN2M	Motor side encoder connection connector (M-axis) 5V power supply capacity: 0.35A
(13)	CN3M	Machine side encoder connection connector (M-axis) 5V power supply capacity: 0.35A
(14)	CN20	Motor brake/dynamic brake control connector (Key way: X type)
(15)	TE2	Main circuit power supply input terminal (DC input)
(16)	TE3	Control power input terminal (single-phase AC input)
(17)	TE1	Motor power supply output connector (M-axis, 3-phase AC output)
(18)		Motor power supply output connector (L-axis, 3-phase AC output)
(19)	PE	Grounding terminal Note that TE1 connector is used for the motor grounding .

Specifications

Item		Specifications	
		L	M
Nominal maximum current(peak)[A]		80	80
Output	Rated voltage[V]	340AC	
	Rated current[A]	20.1	20.1
Input	Rated voltage[V]	513 to 648DC	
	Rated current[A]	16	
Control power	Frequency[Hz]	50 / 60	
	Tolerable frequency fluctuation[%]	±3% max	
	Voltage(50Hz)[V]	380 to 440AC	
	Voltage(60Hz)[V]	380 to 480AC	
	Tolerable voltage fluctuation[%]	+10%, -15%	
	Max. current[A]	0.1	
	Max. rush current[A]	18	
	Max. rush conductivity time[ms]	12	
Max. earth leakage current[mA]		2	2
Braking		Regenerative braking and dynamic brakes	
	Dynamic brakes	Built-in	
Heating value	Inside panel[W]	83	
	Outside panel[W]	445	
Cooling method		Forced air cooling	
Mass[kg]		6.3	

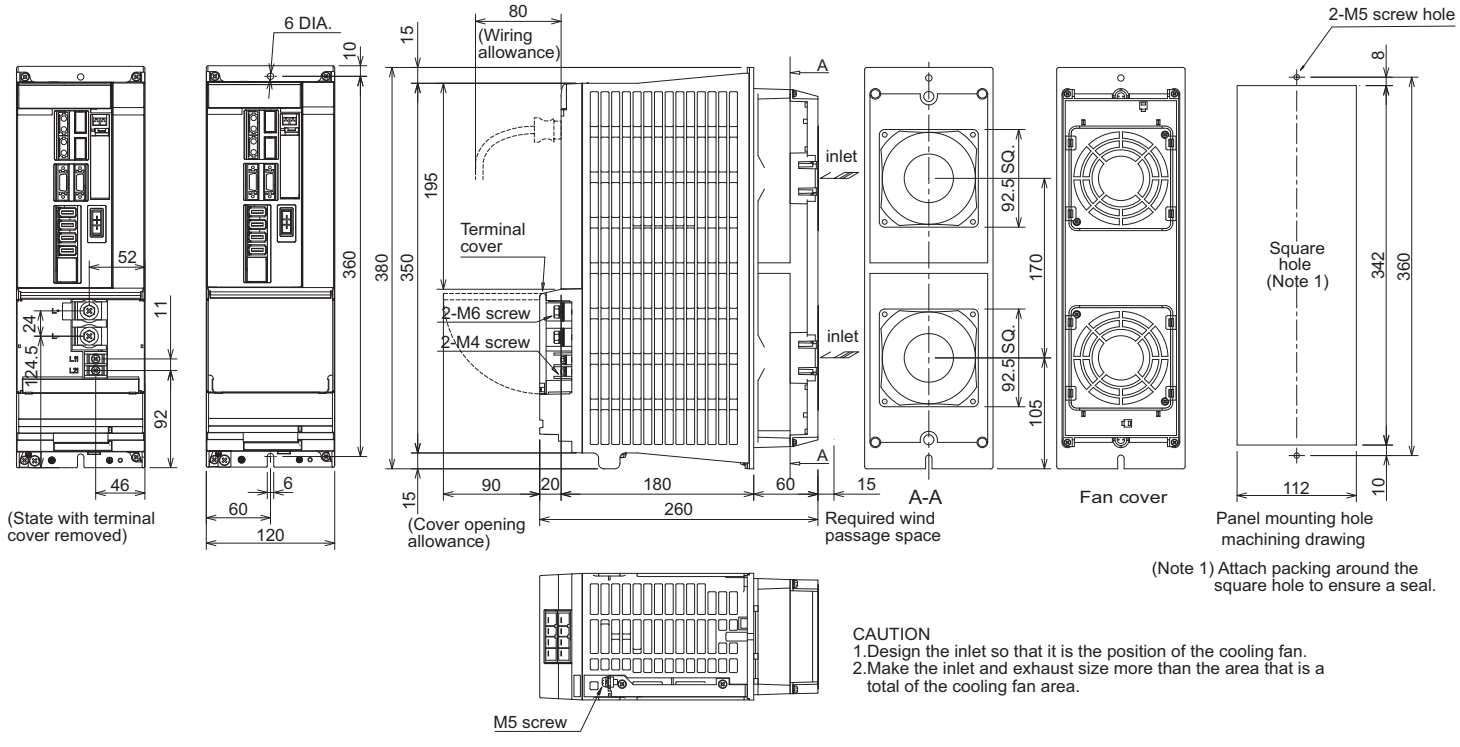
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s^2 (0.5G) / 49m/s^2 (5G)

Recommended wire

	Terminal name					
	TE1 (U, V, W, earth) The values inside of ( ) are M side		TE2 (L+, L-)		TE3 (L11, L21, L12, L22, MC1)	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	5.5 (5.5)	10 (10)	Match with TE2 of selected power supply unit		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	5.5 (5.5)	10 (10)			2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	2 (2)	14 (14)			1.25 to 2	16 to14

Outline dimension drawings [Unit : mm]



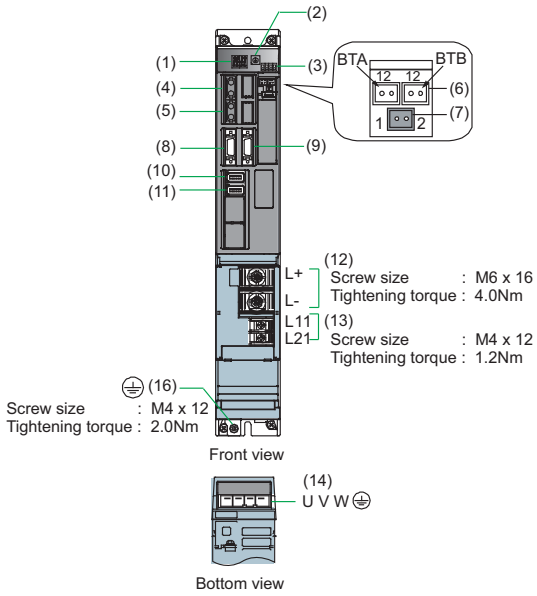
(Note 1) Attach packing around the square hole to ensure a seal.

CAUTION
1.Design the inlet so that it is the position of the cooling fan.
2.Make the inlet and exhaust size more than the area that is a total of the cooling fan area.

Spindle drive unit

Spindle drive unit

MDS-DH-SP-20



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SWL	Axis No. setting switch
(3)	SW1	Unused axis setting switch
(4)	CN1A	NC or master axis optical communication connector
(5)	CN1B	Slave axis optical communication connector
(6)		(Unused)
(7)	BT1	For connecting battery built-in drive unit ER6V-C119B
(8)	CN9	(Unused)
(9)	CN4	Power supply communication connector
(10)	CN2L	Motor side encoder connection connector 5V power supply capacity: 0.35A
(11)	CN3L	Spindle side encoder connection connector 5V power supply capacity: 0.35A
(12)	TE2	Main circuit power supply input terminal (DC input)
(13)	TE3	Control power input terminal (single-phase AC input)
(14)	TE1	Motor power supply output connector (3-phase AC output)
(16)	PE	Grounding terminal Note that TE1 connector is used for the motor grounding .

Specifications

Item		Specifications
Nominal maximum current(peak)[A]		20
Output	Rated voltage[V]	340AC
	Rated current[A]	9.0
Input	Rated voltage[V]	513 to 648DC
	Rated current[A]	10
Control power	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±3% max
	Voltage(50Hz)[V]	380 to 440AC
	Voltage(60Hz)[V]	380 to 480AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Max. current[A]	0.1
	Max. rush current[A]	18
	Max. rush conductivity time[ms]	12
Max. earth leakage current[mA]		15
Braking		Regenerative braking and dynamic brakes
Heating value	Inside panel[W]	32
	Outside panel[W]	88
Cooling method		Forced air cooling
Mass[kg]		3.8

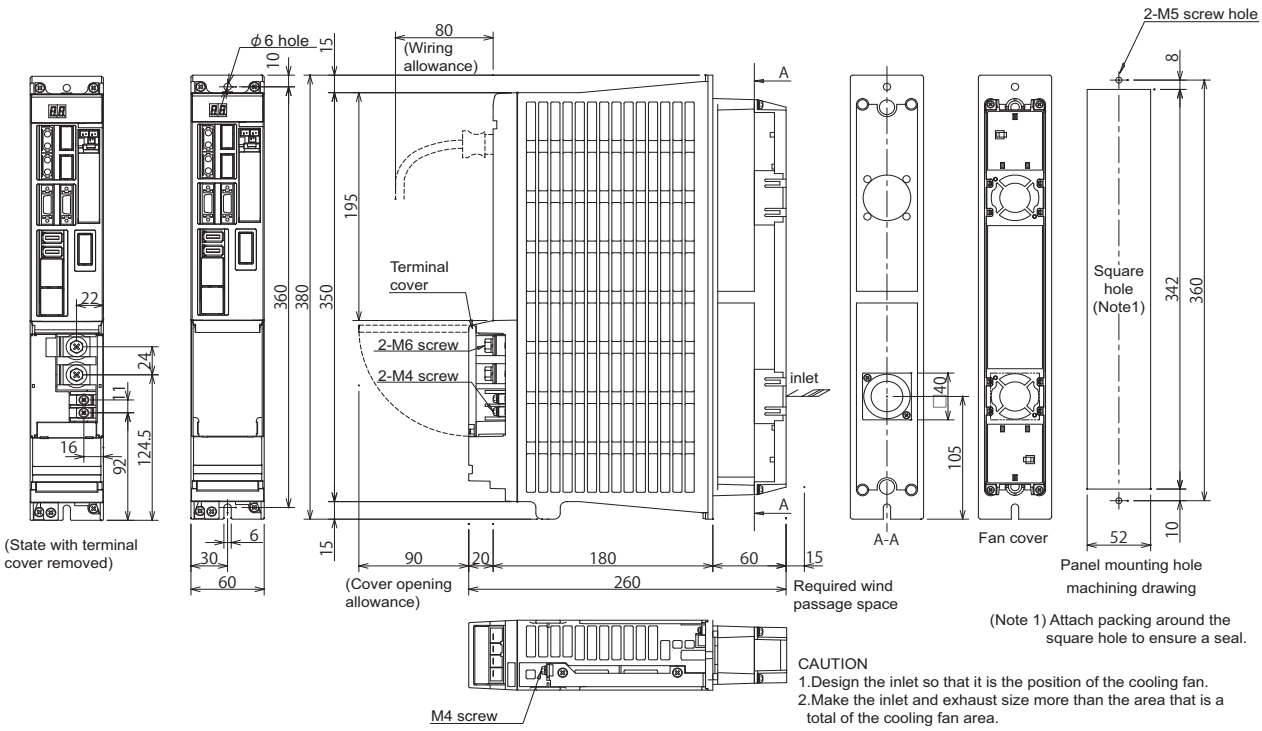
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	$4.9m/s^2$ (0.5G) / $49m/s^2$ (5G)

Recommended wire

	Terminal name					
	TE1 (U, V, W, earth)		TE2 (L+, L-)		TE3 (L11, L21)	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	2	14	Match with TE2 of selected power supply unit		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	2	14			2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	2	14			1.25 to 2	16 to 14

Outline dimension drawings [Unit : mm]

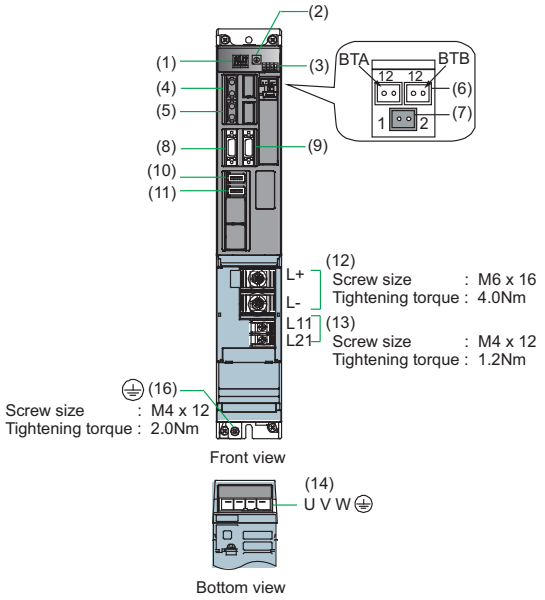


(Note 1) Attach packing around the square hole to ensure a seal.

CAUTION
1.Design the inlet so that it is the position of the cooling fan.
2.Make the inlet and exhaust size more than the area that is a total of the cooling fan area.

Spindle drive unit

MDS-DH-SP-40



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SWL	Axis No. setting switch
(3)	SW1	Unused axis setting switch
(4)	CN1A	NC or master axis optical communication connector
(5)	CN1B	Slave axis optical communication connector
(6)		(Unused)
(7)	BT1	For connecting battery built-in drive unit ER6V-C119B
(8)	CN9	(Unused)
(9)	CN4	Power supply communication connector
(10)	CN2L	Motor side encoder connection connector 5V power supply capacity: 0.35A
(11)	CN3L	Spindle side encoder connection connector 5V power supply capacity: 0.35A
(12)	TE2	Main circuit power supply input terminal (DC input)
(13)	TE3	Control power input terminal (single-phase AC input)
(14)	TE1	Motor power supply output connector (3-phase AC output)
(16)	PE	Grounding terminal Note that TE1 connector is used for the motor grounding .

Specifications

Item		Specifications
Nominal maximum current(peak)[A]		40
Output	Rated voltage[V]	340AC
	Rated current[A]	13
Input	Rated voltage[V]	513 to 648DC
	Rated current[A]	15
Control power	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±3% max
	Voltage(50Hz)[V]	380 to 440AC
	Voltage(60Hz)[V]	380 to 480AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Max. current[A]	0.1
	Max. rush current[A]	18
	Max. rush conductivity time[ms]	12
Max. earth leakage current[mA]		15
Braking		Regenerative braking and dynamic brakes
Heating value	Inside panel[W]	42
	Outside panel[W]	158
Cooling method		Forced air cooling
Mass[kg]		4.5

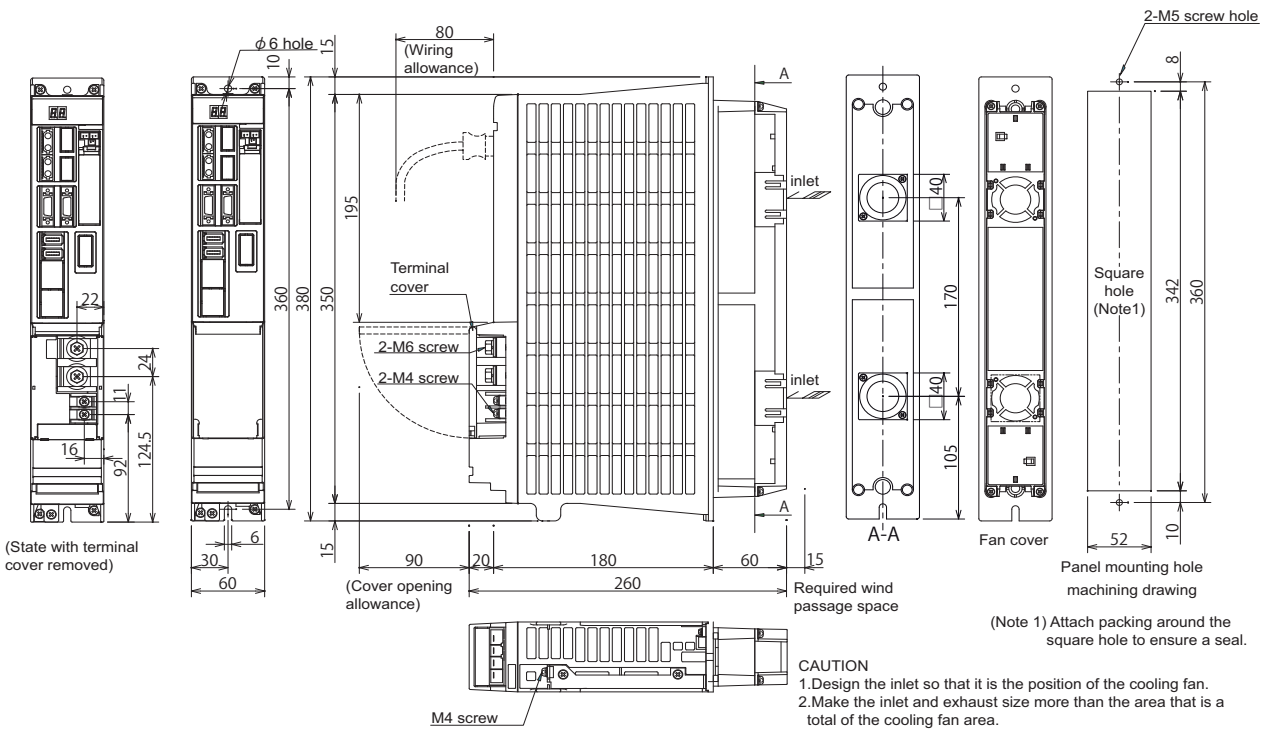
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	$4.9m/s^2$ (0.5G) / $49m/s^2$ (5G)

Recommended wire

	Terminal name					
	TE1 (U, V, W, earth)		TE2 (L+, L-)		TE3 (L11, L21)	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	2	14	Match with TE2 of selected power supply unit		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	2	14			2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	2	14			1.25 to 2	16 to 14

Outline dimension drawings [Unit : mm]

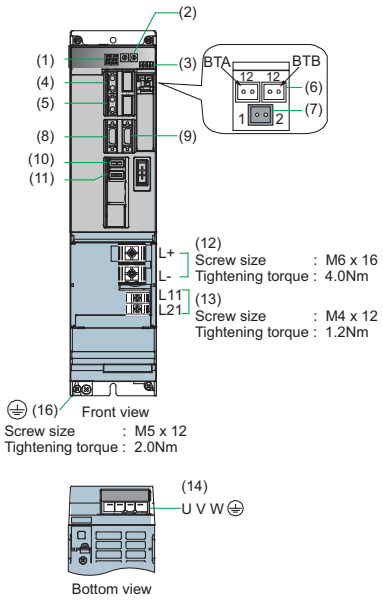


(Note 1) Attach packing around the square hole to ensure a seal.

CAUTION
1.Design the inlet so that it is the position of the cooling fan.
2.Make the inlet and exhaust size more than the area that is a total of the cooling fan area.

Spindle drive unit

MDS-DH-SP-80



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SWL	Axis No. setting switch
(3)	SW1	Unused axis setting switch
(4)	CN1A	NC or master axis optical communication connector
(5)	CN1B	Slave axis optical communication connector
(6)		(Unused)
(7)	BT1	For connecting battery built-in drive unit ER6V-C119B
(8)	CN9	(Unused)
(9)	CN4	Power supply communication connector
(10)	CN2L	Motor side encoder connection connector 5V power supply capacity: 0.35A
(11)	CN3L	Spindle side encoder connection connector 5V power supply capacity: 0.35A
(12)	TE2	Main circuit power supply input terminal (DC input)
(13)	TE3	Control power input terminal (single-phase AC input)
(14)	TE1	Motor power supply output connector (3-phase AC output)
(16)	PE	Grounding terminal Note that TE1 connector is used for the motor grounding .

Specifications

Item		Specifications
Nominal maximum current(peak)[A]		80
Output	Rated voltage[V]	340AC
	Rated current[A]	19
Input	Rated voltage[V]	513 to 648DC
	Rated current[A]	21
Control power	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±3% max
	Voltage(50Hz)[V]	380 to 440AC
	Voltage(60Hz)[V]	380 to 480AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Max. current[A]	0.1
	Max. rush current[A]	18
	Max. rush conductivity time[ms]	12
Max. earth leakage current[mA]		15
Braking		Regenerative braking and dynamic brakes
Heating value	Inside panel[W]	54
	Outside panel[W]	237
Cooling method		Forced air cooling
Mass[kg]		4.5

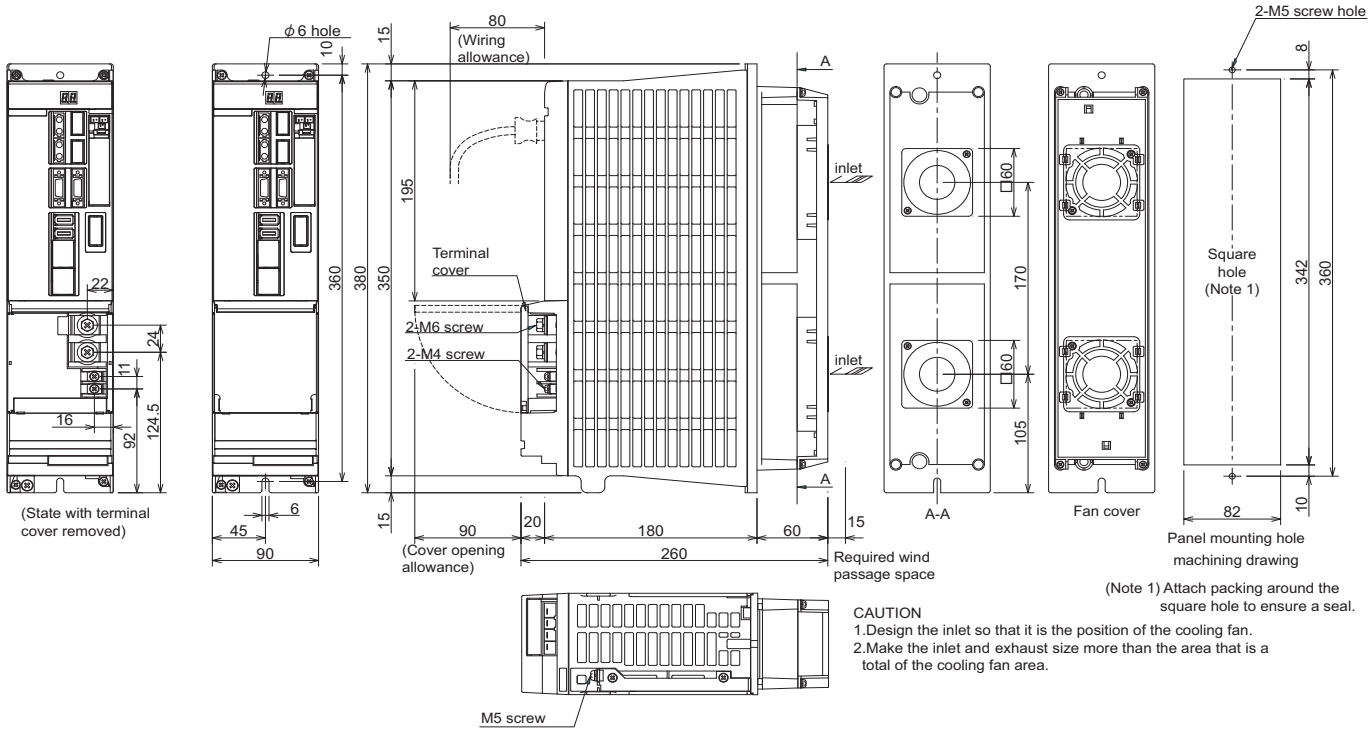
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s^2 (0.5G) / 49m/s^2 (5G)

Recommended wire

	Terminal name					
	TE1 (U, V, W, earth)		TE2 (L+, L-)		TE3 (L11, L21)	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	5.5	10	Match with TE2 of selected power supply unit		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	3.5	12			2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	3.5	12			1.25 to 2	16 to 14

Outline dimension drawings [Unit : mm]

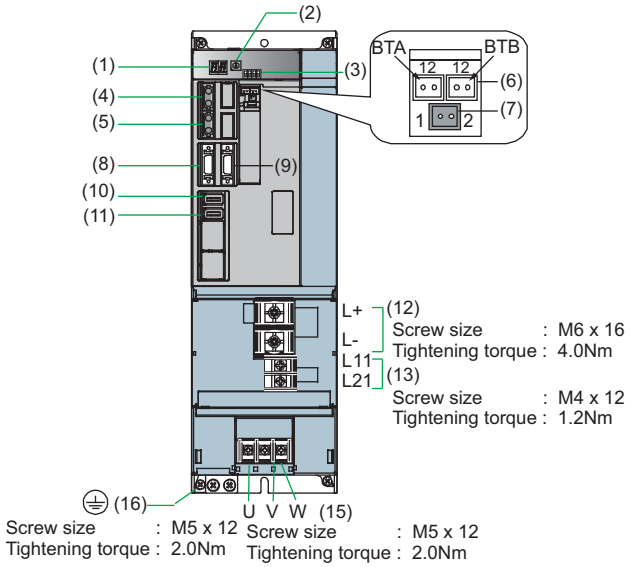


(Note 1) Attach packing around the square hole to ensure a seal.

CAUTION
1.Design the inlet so that it is the position of the cooling fan.
2.Make the inlet and exhaust size more than the area that is a total of the cooling fan area.

Spindle drive unit

MDS-DH-SP-100



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SWL	Axis No. setting switch
(3)	SW1	Unused axis setting switch
(4)	CN1A	NC or master axis optical communication connector
(5)	CN1B	Slave axis optical communication connector
(6)		(Unused)
(7)	BT1	For connecting battery built-in drive unit ER6V-C119B
(8)	CN9	(Unused)
(9)	CN4	Power supply communication connector
(10)	CN2L	Motor side encoder connection connector 5V power supply capacity: 0.35A
(11)	CN3L	Spindle side encoder connection connector 5V power supply capacity: 0.35A
(12)	TE2	Main circuit power supply input terminal (DC input)
(13)	TE3	Control power input terminal (single-phase AC input)
(15)	TE1	Motor power supply output terminal (3-phase AC output)
(16)	PE	Grounding terminal

Specifications

Item		Specifications
Nominal maximum current(peak)[A]		100
Output	Rated voltage[V]	340AC
	Rated current[A]	30
Input	Rated voltage[V]	513 to 648DC
	Rated current[A]	38
Control power	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±3% max
	Voltage(50Hz)[V]	380 to 440AC
	Voltage(60Hz)[V]	380 to 480AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Max. current[A]	0.1
	Max. rush current[A]	18
	Max. rush conductivity time[ms]	12
Max. earth leakage current[mA]		15
Braking		Regenerative braking and dynamic brakes
Heating value	Inside panel[W]	73
	Outside panel[W]	369
Cooling method		Forced air cooling
Mass[kg]		5.8

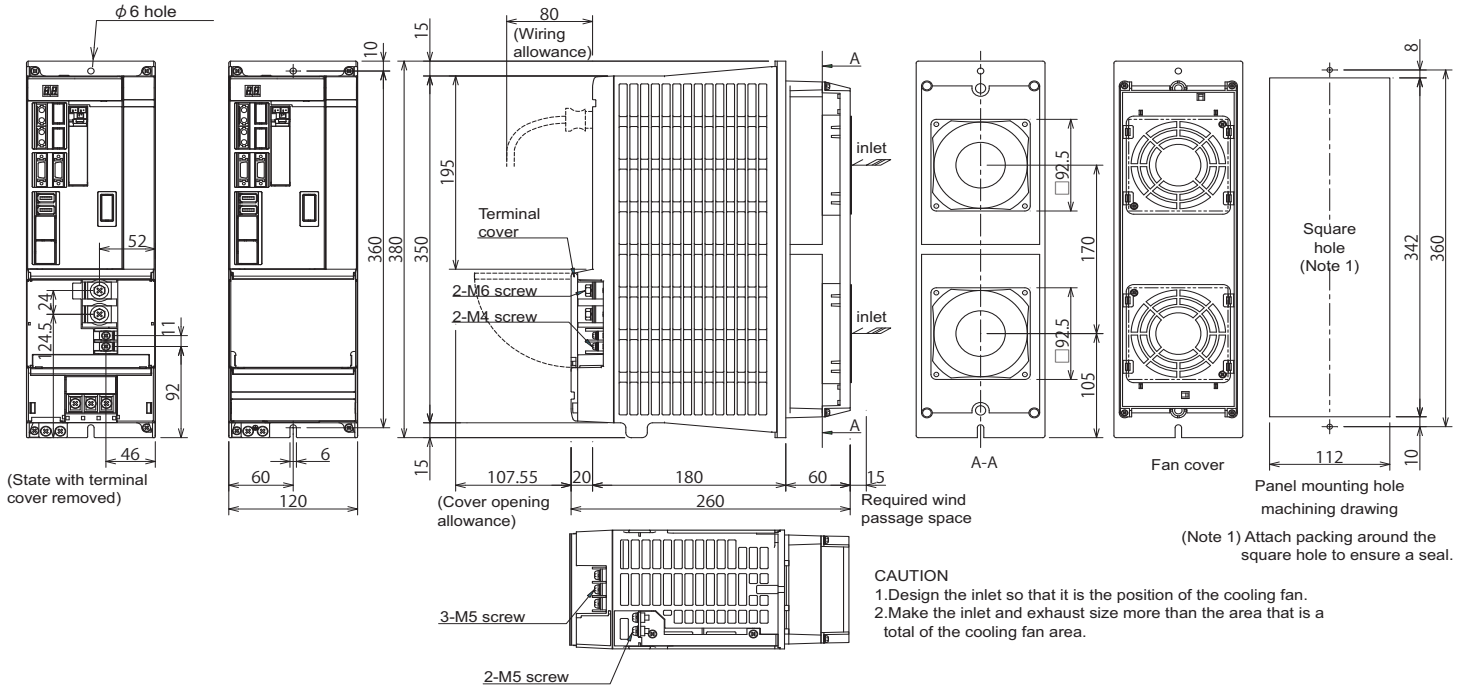
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s^2 (0.5G) / 49m/s^2 (5G)

Recommended wire

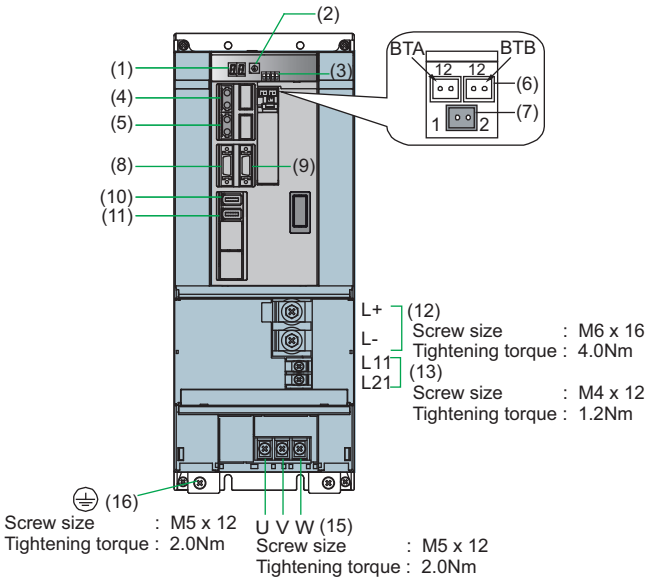
	Terminal name					
	TE1 (U, V, W, earth)		TE2 (L+, L-)		TE3 (L11, L21)	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	8	8	Match with TE2 of selected power supply unit		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	5.5	10			2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	5.5	10			1.25 to 2	16 to 14

Outline dimension drawings [Unit : mm]



Spindle drive unit

MDS-DH-SP-160



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SWL	Axis No. setting switch
(3)	SW1	Unused axis setting switch
(4)	CN1A	NC or master axis optical communication connector
(5)	CN1B	Slave axis optical communication connector
(6)		(Unused)
(7)	BT1	For connecting battery built-in drive unit ER6V-C119B
(8)	CN9	(Unused)
(9)	CN4	Power supply communication connector
(10)	CN2L	Motor side encoder connection connector 5V power supply capacity: 0.35A
(11)	CN3L	Spindle side encoder connection connector 5V power supply capacity: 0.35A
(12)	TE2	Main circuit power supply input terminal (DC input)
(13)	TE3	Control power input terminal (single-phase AC input)
(15)	TE1	Motor power supply output terminal (3-phase AC output)
(16)	PE	Grounding terminal

Specifications

Item		Specifications
Nominal maximum current(peak)[A]		160
Output	Rated voltage[V]	340AC
	Rated current[A]	65
Input	Rated voltage[V]	513 to 648DC
	Rated current[A]	72
Control power	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±3% max
	Voltage(50Hz)[V]	380 to 440AC
	Voltage(60Hz)[V]	380 to 480AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Max. current[A]	0.1
	Max. rush current[A]	18
	Max. rush conductivity time[ms]	12
Max. earth leakage current[mA]		15
Braking		Regenerative braking and dynamic brakes
Heating value	Inside panel[W]	110
	Outside panel[W]	639
Cooling method		Forced air cooling
Mass[kg]		7.5

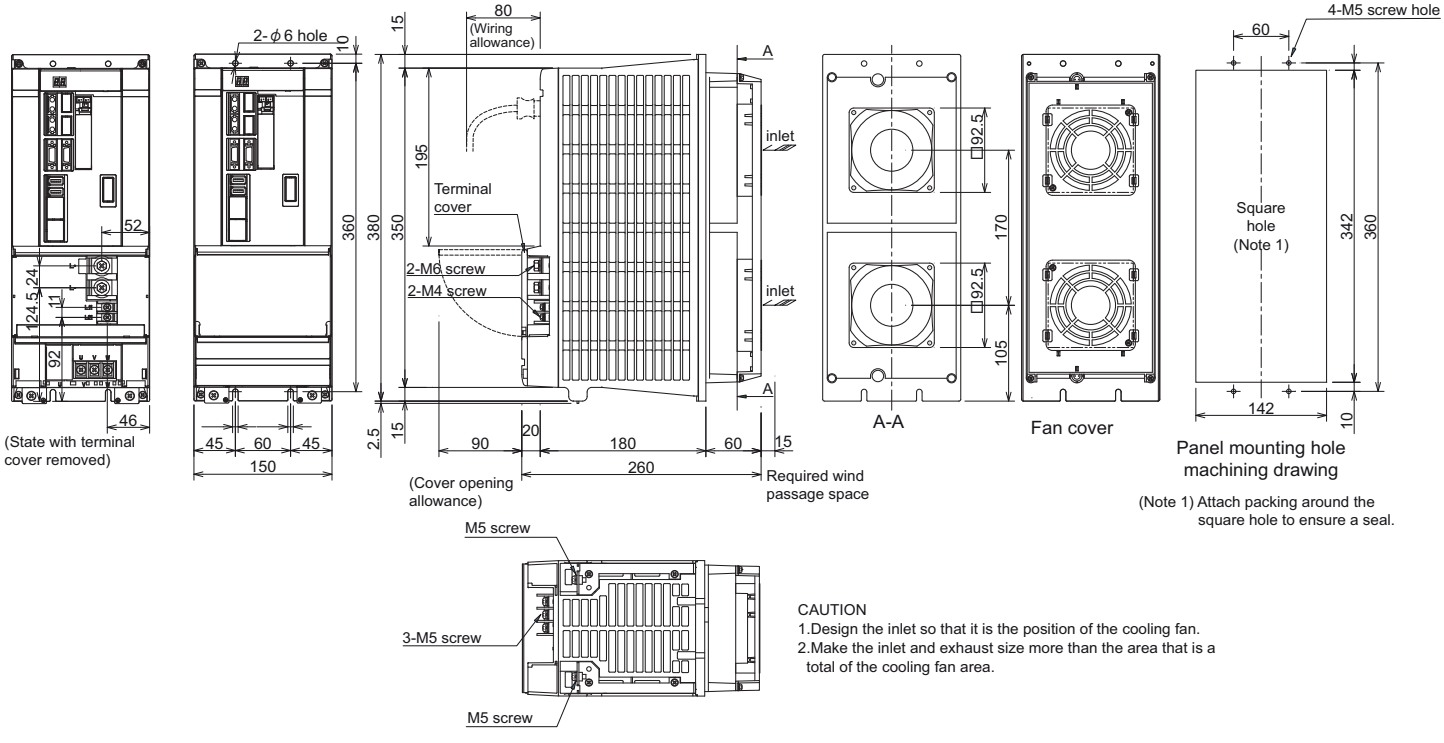
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s^2 (0.5G) / 49m/s^2 (5G)

Recommended wire

	Terminal name					
	TE1 (U, V, W, earth)		TE2 (L+, L-)		TE3 (L11, L21)	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	22	4	Match with TE2 of selected power supply unit		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	14	6			2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	14	6			1.25 to 2	16 to 14

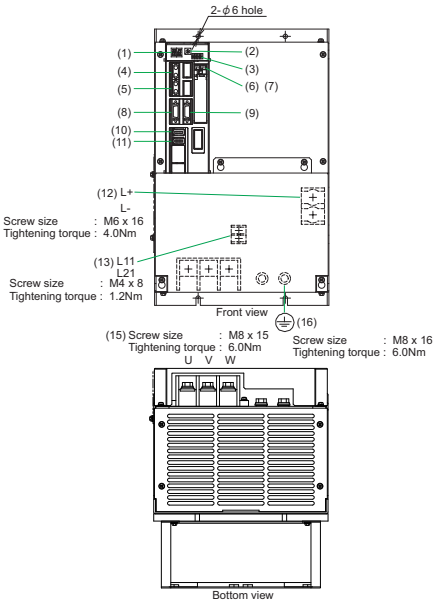
Outline dimension drawings [Unit : mm]



CAUTION
1.Design the inlet so that it is the position of the cooling fan.
2.Make the inlet and exhaust size more than the area that is a total of the cooling fan area.

Spindle drive unit

MDS-DH-SP-200



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SWL	Axis No. setting switch
(3)	SW1	Unused axis setting switch
(4)	CN1A	NC or master axis optical communication connector
(5)	CN1B	Slave axis optical communication connector
(6)		(Unused)
(7)	BT1	For connecting battery built-in drive unit ER6V-C119B
(8)	CN9	(Unused)
(9)	CN4	Power supply communication connector
(10)	CN2L	Motor side encoder connection connector 5V power supply capacity: 0.35A
(11)	CN3L	Spindle side encoder connection connector 5V power supply capacity: 0.35A
(12)	TE2	Main circuit power supply input terminal (DC input)
(13)	TE3	Control power input terminal (single-phase AC input)
(15)	TE1	Motor power supply output terminal (3-phase AC output)
(16)	PE	Grounding terminal

Specifications

Item		Specifications
Nominal maximum current(peak)[A]		200
Output	Rated voltage[V]	340AC
	Rated current[A]	85
Input	Rated voltage[V]	513 to 648DC
	Rated current[A]	99
Control power	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±3% max
	Voltage(50Hz)[V]	380 to 440AC
	Voltage(60Hz)[V]	380 to 480AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Max. current[A]	0.1
	Max. rush current[A]	18
	Max. rush conductivity time[ms]	18
Max. earth leakage current[mA]		15
Braking		Regenerative braking and dynamic brakes
Heating value	Inside panel[W]	126
	Outside panel[W]	746
Cooling method		Forced air cooling
Mass[kg]		16.5

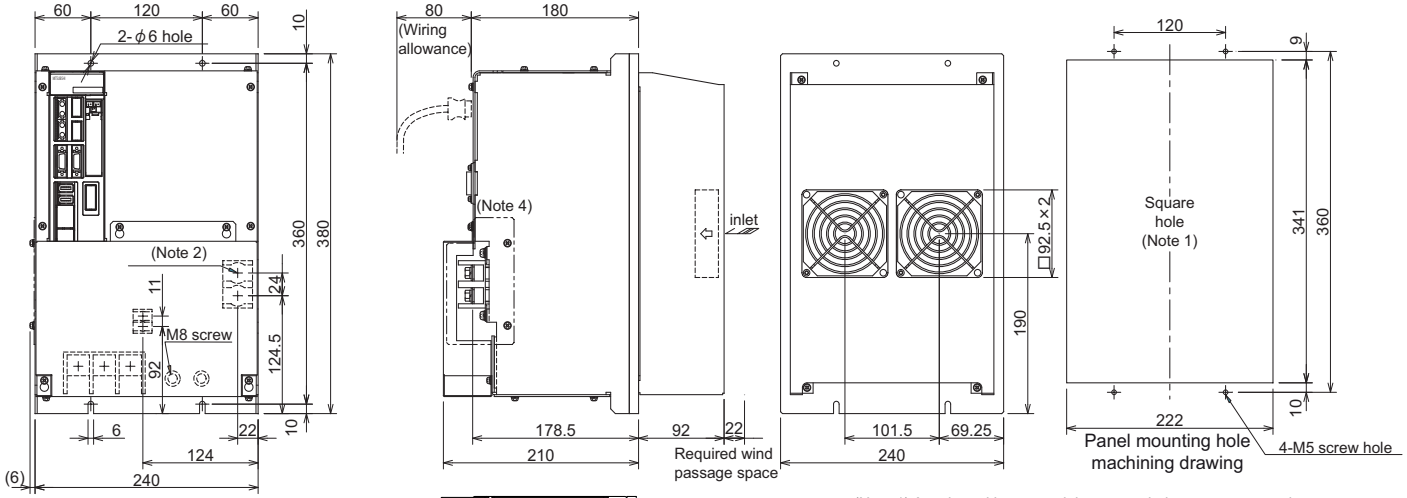
Environmental conditions

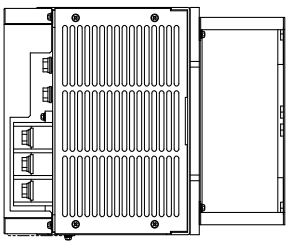
Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s^2 (0.5G) / 49m/s^2 (5G)

Recommended wire

	Terminal name					
	TE1 (U, V, W, earth)		TE2 (L+, L-)		TE3 (L11, L21)	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	38	2	Match with TE2 of selected power supply unit		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	22	4			2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	22	4			1.25 to 2	16 to 14

Outline dimension drawings [Unit : mm]



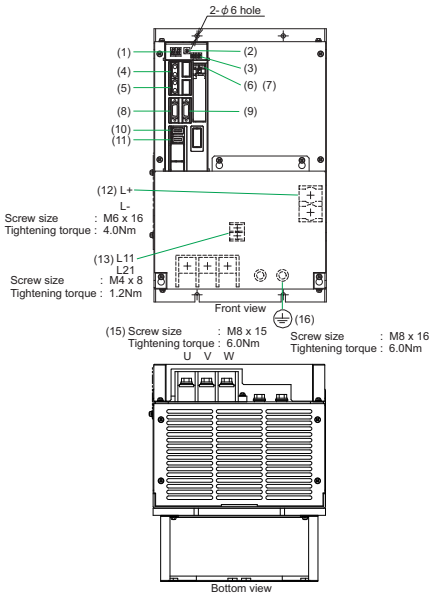


(Note 1) Attach packing around the square hole to ensure a seal.
(Note 2) DC connection bar is required.
Always install a lage capacity drive unit in the left side of power supply unit,and connect with DC connection bar.

CAUTION
1.Design the inlet so that it is the position of the cooling fan.
2.Make the inlet and exhaust size more than the area that is a total of the cooling fan area.

Spindle drive unit

MDS-DH-SP-320



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SWL	Axis No. setting switch
(3)	SW1	Unused axis setting switch
(4)	CN1A	NC or master axis optical communication connector
(5)	CN1B	Slave axis optical communication connector
(6)		(Unused)
(7)	BT1	For connecting battery built-in drive unit ER6V-C119B
(8)	CN9	(Unused)
(9)	CN4	Power supply communication connector
(10)	CN2L	Motor side encoder connection connector 5V power supply capacity: 0.35A
(11)	CN3L	Spindle side encoder connection connector 5V power supply capacity: 0.35A
(12)	TE2	Main circuit power supply input terminal (DC input)
(13)	TE3	Control power input terminal (single-phase AC input)
(15)	TE1	Motor power supply output terminal (3-phase AC output)
(16)	PE	Grounding terminal

Specifications

Item		Specifications
Nominal maximum current(peak)[A]		320
Output	Rated voltage[V]	340AC
	Rated current[A]	103
Input	Rated voltage[V]	513 to 648DC
	Rated current[A]	119
Control power	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±3% max
	Voltage(50Hz)[V]	380 to 440AC
	Voltage(60Hz)[V]	380 to 480AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Max. current[A]	0.1
	Max. rush current[A]	18
	Max. rush conductivity time[ms]	18
Max. earth leakage current[mA]		15
Braking		Regenerative braking and dynamic brakes
Heating value	Inside panel[W]	168
	Outside panel[W]	1034
Cooling method		Forced air cooling
Mass[kg]		16.5

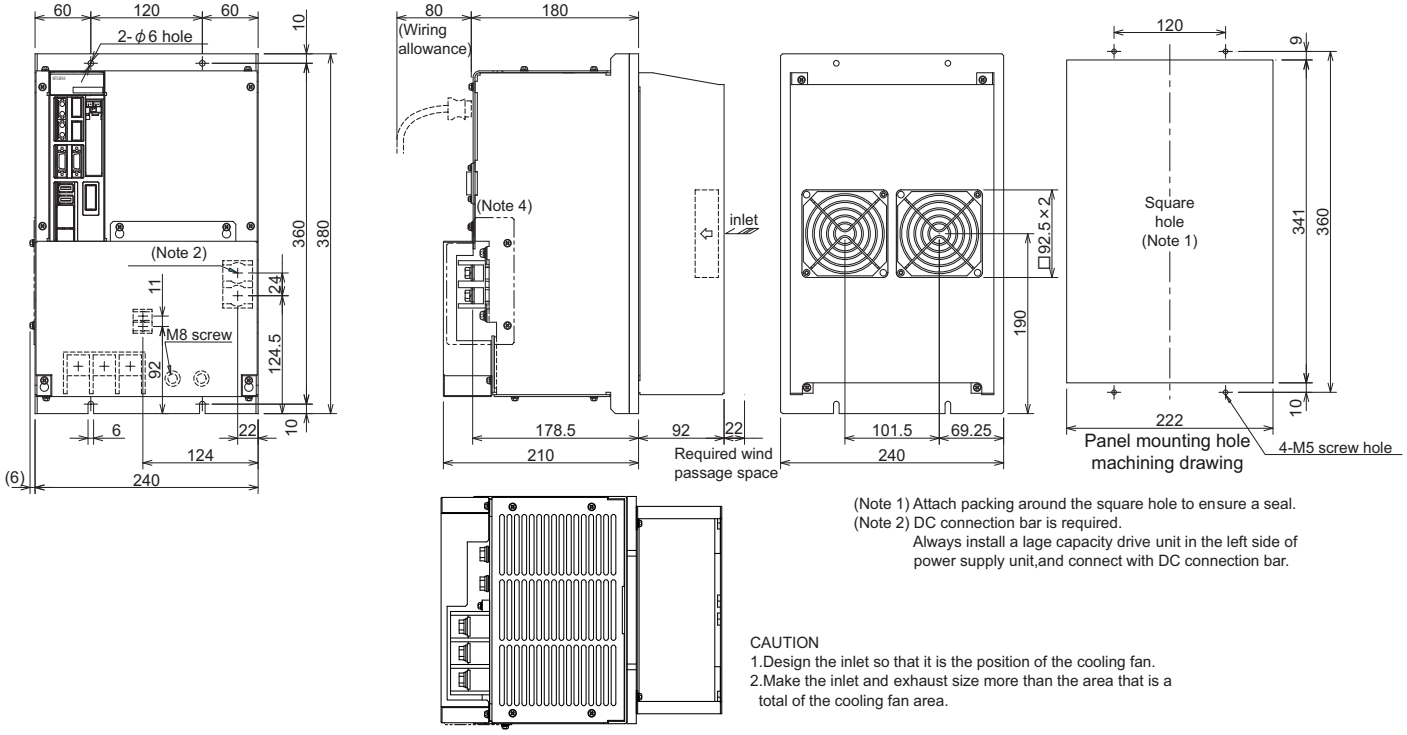
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s^2 (0.5G) / 49m/s^2 (5G)

Recommended wire

	Terminal name					
	TE1 (U, V, W, earth)		TE2 (L+, L-)		TE3 (L11, L21)	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	-	-	Match with TE2 of selected power supply unit		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	38	2			2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	38	2			1.25 to 2	16 to 14

Outline dimension drawings [Unit : mm]

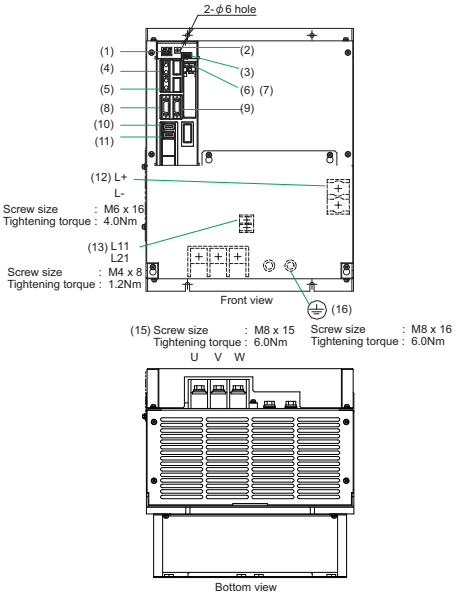


(Note 1) Attach packing around the square hole to ensure a seal.
(Note 2) DC connection bar is required.
Always install a lage capacity drive unit in the left side of power supply unit,and connect with DC connection bar.

CAUTION
1.Design the inlet so that it is the position of the cooling fan.
2.Make the inlet and exhaust size more than the area that is a total of the cooling fan area.

Spindle drive unit

MDS-DH-SP-480



No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SWL	Axis No. setting switch
(3)	SW1	Unused axis setting switch
(4)	CN1A	NC or master axis optical communication connector
(5)	CN1B	Slave axis optical communication connector
(6)		(Unused)
(7)	BT1	For connecting battery built-in drive unit ER6V-C119B
(8)	CN9	(Unused)
(9)	CN4	Power supply communication connector
(10)	CN2L	Motor side encoder connection connector 5V power supply capacity: 0.35A
(11)	CN3L	Spindle side encoder connection connector 5V power supply capacity: 0.35A
(12)	TE2	Main circuit power supply input terminal (DC input)
(13)	TE3	Control power input terminal (single-phase AC input)
(15)	TE1	Motor power supply output terminal (3-phase AC output)
(16)	PE	Grounding terminal

Specifications

Item		Specifications
Nominal maximum current(peak)[A]		480
Output	Rated voltage[V]	340AC
	Rated current[A]	180
Input	Rated voltage[V]	513 to 648DC
	Rated current[A]	150
Control power	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±3% max
	Voltage(50Hz)[V]	380 to 440AC
	Voltage(60Hz)[V]	380 to 480AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Max. current[A]	0.1
	Max. rush current[A]	18
	Max. rush conductivity time[ms]	18
Max. earth leakage current[mA]		15
Braking		Regenerative braking and dynamic brakes
Heating value	Inside panel[W]	232
	Outside panel[W]	1488
Cooling method		Forced air cooling
Mass[kg]		22.5

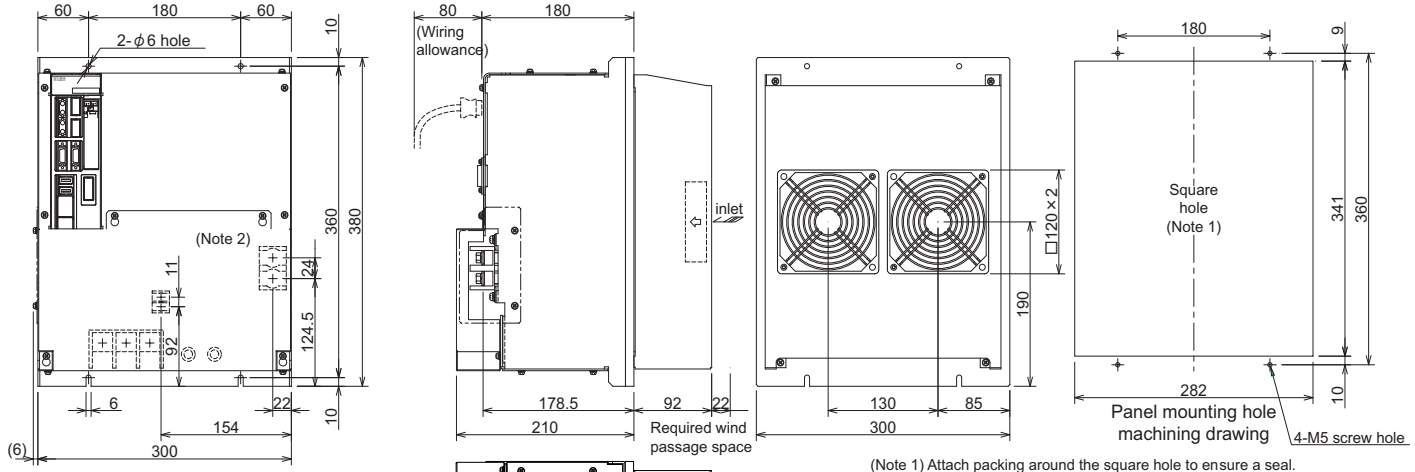
Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	$4.9m/s^2$ (0.5G) / $49m/s^2$ (5G)

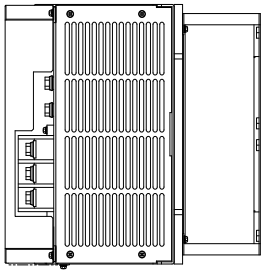
Recommended wire

	Terminal name					
	TE1 (U, V, W, earth)		TE2 (L+, L-)		TE3 (L11, L21)	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	-	-	Bar enclosed		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	80	3/0			2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	60	1/0			1.25 to 2	16 to 14

Outline dimension drawings [Unit : mm]



(Note 1) Attach packing around the square hole to ensure a seal.
(Note 2) DC connection bar is required.
Always install a lage capacity drive unit in the left side of power supply unit,and connect with DC connection bar.



CAUTION
1.Design the inlet so that it is the position of the cooling fan.
2.Make the inlet and exhaust size more than the area that is a total of the cooling fan area.

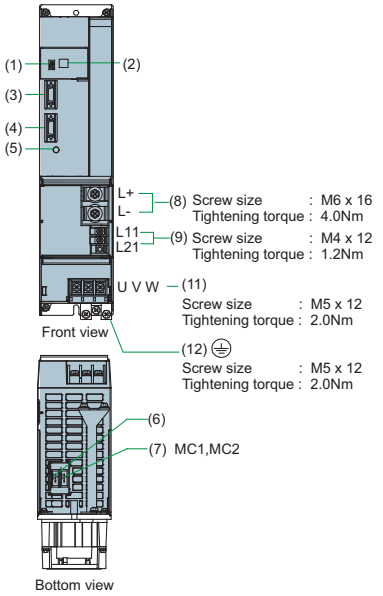
Power supply unit

Power supply unit

MDS-DH-CV-37

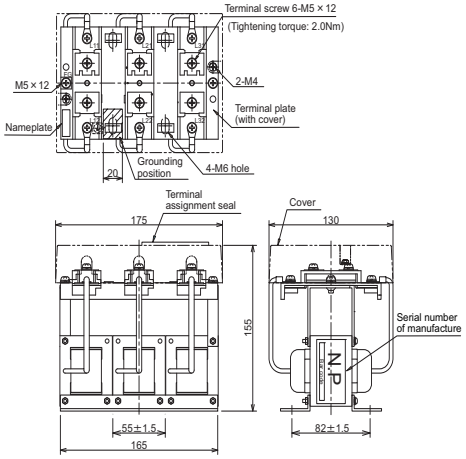
Specifications

Item		Specifications
30-minute rated output[kW]		3.7
Continuous rated output[kW]		2.2
Power facility capacity[kVA]		5.3
Output	Rated voltage[V]	513 to 648DC
	Rated current[A]	7.1
Input	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±3% max
	Rated voltage(50Hz)[V]	380 to 440AC
	Rated voltage(60Hz)[V]	380 to 480AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Rated current[A]	5.2
Control power	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±3% max
	Voltage(50Hz)[V]	380 to 440AC
	Voltage(60Hz)[V]	380 to 480AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Max. current[A]	0.1
	Max. rush current[A]	18
	Max. rush conductivity time[ms]	12
Heating value	Inside panel[W]	20
	Outside panel[W]	34
Cooling method		Forced air cooling
Mass[kg]		6.0
AC reactor		DH-AL-7.5K
Selection example of contactor (option part)		S-T12-AC400V
	Free-air thermal current[A]	20
	Selection current (for 380V input)[A]	8
	Rated output[kW]	3.7
Selection example of circuit protector (option part)		NF63-CW3P-10A
	Rated current[A]	10
	Selection current (for 380V input)[A]	8
	Rated output[kW]	3.7

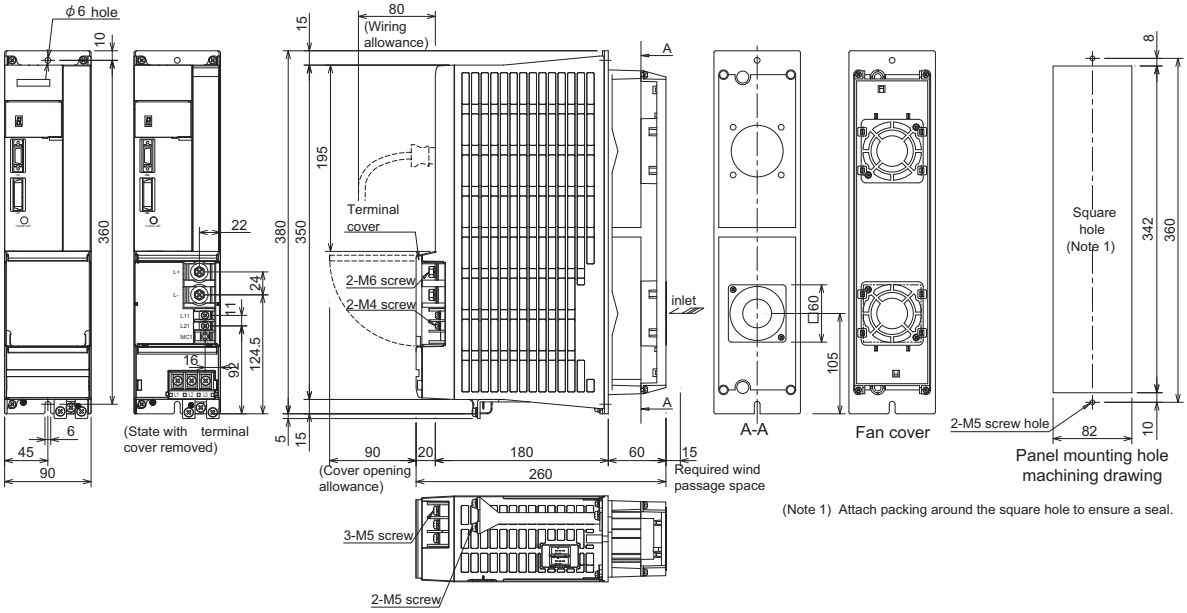


No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SW1	Power supply setting switch
(3)	CN4	Servo/spindle communication connector (primary)
(4)	CN9	Servo/spindle communication connector (secondary)
(5)	CHARGE LAMP	Converter voltage output charge-discharge status indication LED
(6)	CN23A	External emergency stop input connector
(7)	CN23B	Contactor control connector MC1,MC2 (Key way: Y type)
(8)	TE2	Main circuit power supply output terminal (DC output)
(9)	TE3	Control power input terminal (single-phase AC input)
(11)	TE1	Power input terminal (3-phase AC input)
(12)	PE	Grounding terminal

AC reactor



Outline dimension drawings [Unit : mm]



(Note 1) Attach packing around the square hole to ensure a seal.

Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s^2 (0.5G) / 49m/s^2 (5G)

Recommended wire

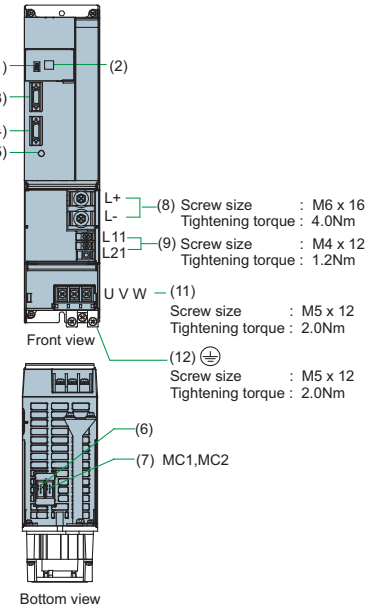
	Terminal name					
	TE1(U, V, W, earth)		TE2(L+, L-)		TE3(L11, L21)	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	2	14	2	14	2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	2	14	2	14	2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	2	14	2	14	1.25 to 2	16 to 14

Power supply unit

MDS-DH-CV-75

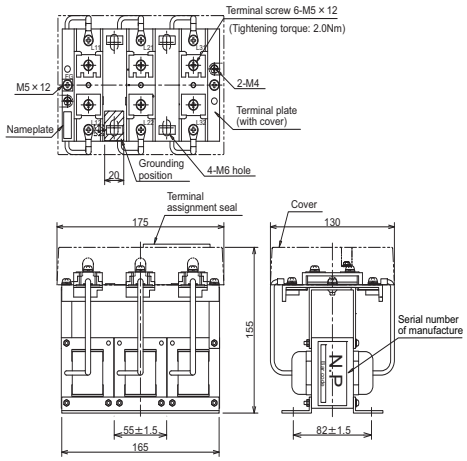
Specifications

Item		Specifications
30-minute rated output[kW]		7.5
Continuous rated output[kW]		5.5
Power facility capacity[kVA]		11.0
Output	Rated voltage[V]	513 to 648DC
	Rated current[A]	15
Input	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±3% max
	Rated voltage(50Hz)[V]	380 to 440AC
	Rated voltage(60Hz)[V]	380 to 480AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Rated current[A]	13
Control power	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±3% max
	Voltage(50Hz)[V]	380 to 440AC
	Voltage(60Hz)[V]	380 to 480AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Max. current[A]	0.1
	Max. rush current[A]	18
	Max. rush conductivity time[ms]	12
Heating value	Inside panel[W]	24
	Outside panel[W]	55
Cooling method		Forced air cooling
Mass[kg]		6.0
AC reactor		DH-AL-7.5K
Selection example of contactor (option part)		S-T12-AC400V
	Free-air thermal current[A]	20
	Selection current (for 380V input)[A]	16
	Rated output[kW]	7.5
Selection example of circuit protector (option part)		NF63-CW3P-20A
	Rated current[A]	20
	Selection current (for 380V input)[A]	16
	Rated output[kW]	7.5

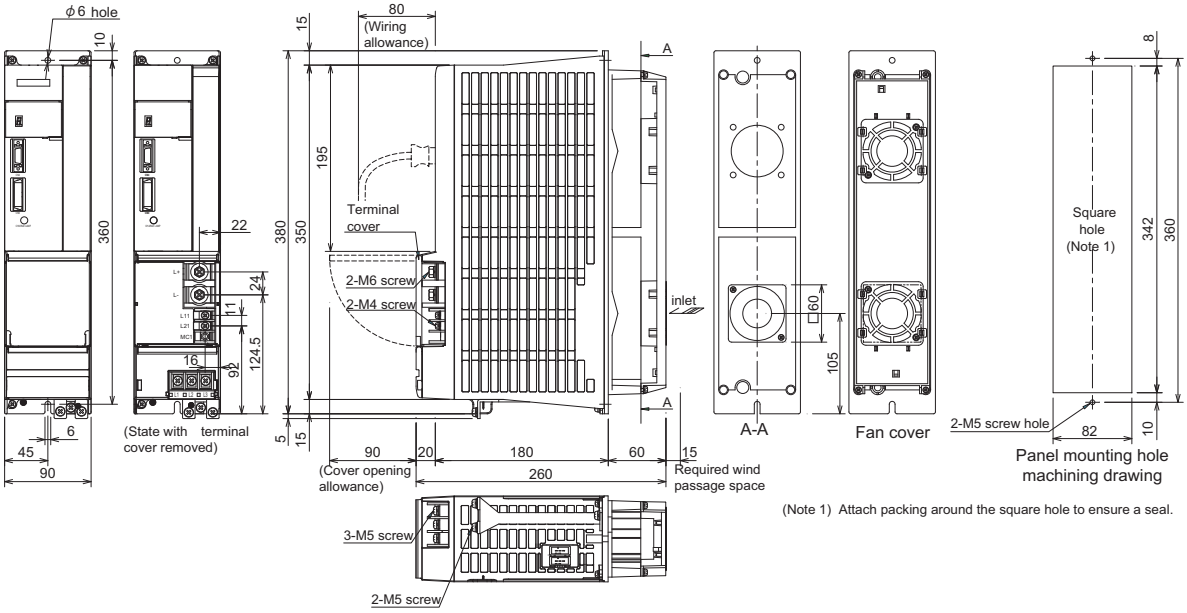


No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SW1	Power supply setting switch
(3)	CN4	Servo/spindle communication connector (primary)
(4)	CN9	Servo/spindle communication connector (secondary)
(5)	CHARGE LAMP	Converter voltage output charge-discharge status indication LED
(6)	CN23A	External emergency stop input connector
(7)	CN23B	Contactor control connector MC1,MC2 (Key way: Y type)
(8)	TE2	Main circuit power supply output terminal (DC output)
(9)	TE3	Control power input terminal (single-phase AC input)
(11)	TE1	Power input terminal (3-phase AC input)
(12)	PE	Grounding terminal

AC reactor



Outline dimension drawings [Unit : mm]



(Note 1) Attach packing around the square hole to ensure a seal.

Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s^2 (0.5G) / 49m/s^2 (5G)

Recommended wire

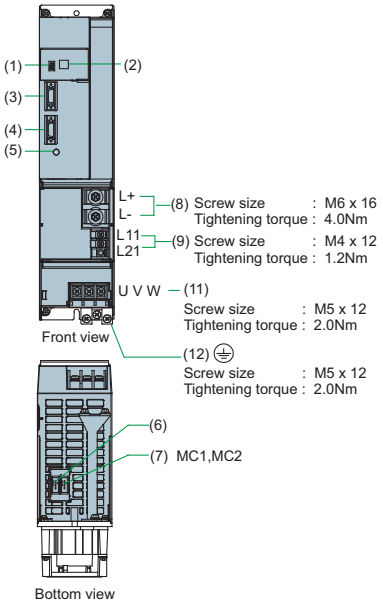
	Terminal name					
	TE1(U, V, W, earth)		TE2(L+, L-)		TE3(L11, L21)	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	2	14	3.5	12	2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	2	14	2	14	2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	2	14	2	14	1.25 to 2	16 to 14

Power supply unit

MDS-DH-CV-110

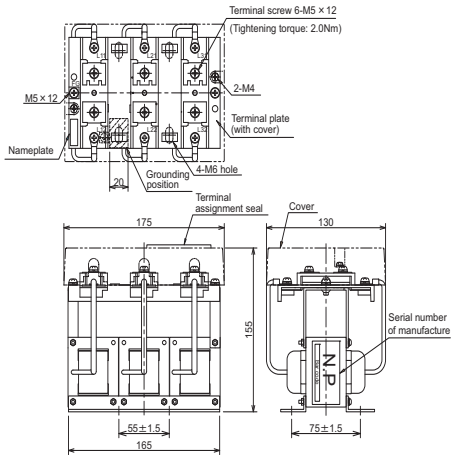
Specifications

Item		Specifications
30-minute rated output[kW]		11.0
Continuous rated output[kW]		7.5
Power facility capacity[kVA]		16.0
Output	Rated voltage[V]	513 to 648DC
	Rated current[A]	21
Input	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±3% max
	Rated voltage(50Hz)[V]	380 to 440AC
	Rated voltage(60Hz)[V]	380 to 480AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Rated current[A]	18
Control power	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±3% max
	Voltage(50Hz)[V]	380 to 440AC
	Voltage(60Hz)[V]	380 to 480AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Max. current[A]	0.1
	Max. rush current[A]	18
	Max. rush conductivity time[ms]	12
Heating value	Inside panel[W]	25
	Outside panel[W]	99
Cooling method		Forced air cooling
Mass[kg]		6.0
AC reactor		DH-AL-11K
Selection example of contactor (option part)		S-T21-AC400V
	Free-air thermal current[A]	32
	Selection current (for 380V input)[A]	24
	Rated output[kW]	11
Selection example of circuit protector (option part)		NF63-CW3P-30A
	Rated current[A]	30
	Selection current (for 380V input)[A]	24
	Rated output[kW]	11

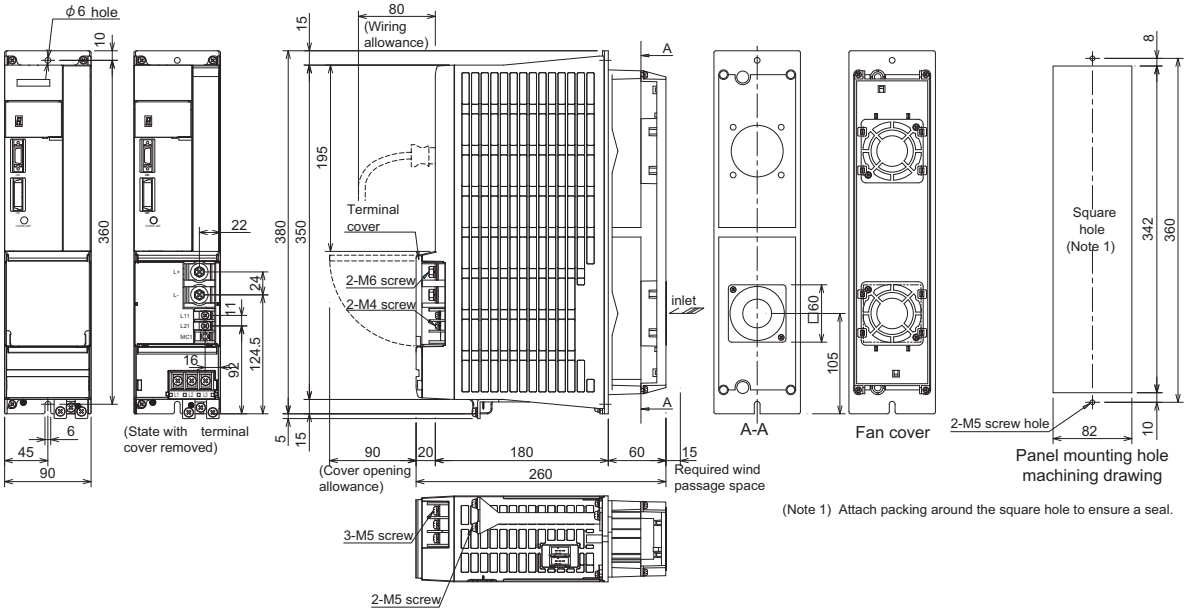


No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SW1	Power supply setting switch
(3)	CN4	Servo/spindle communication connector (primary)
(4)	CN9	Servo/spindle communication connector (secondary)
(5)	CHARGE LAMP	Converter voltage output charge-discharge status indication LED
(6)	CN23A	External emergency stop input connector
(7)	CN23B	Contactor control connector MC1,MC2 (Key way: Y type)
(8)	TE2	Main circuit power supply output terminal (DC output)
(9)	TE3	Control power input terminal (single-phase AC input)
(11)	TE1	Power input terminal (3-phase AC input)
(12)	PE	Grounding terminal

AC reactor



Outline dimension drawings [Unit : mm]



(Note 1) Attach packing around the square hole to ensure a seal.

Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s^2 (0.5G) / 49m/s^2 (5G)

Recommended wire

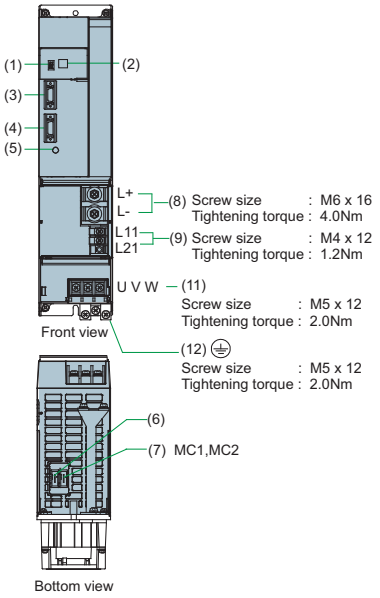
	Terminal name					
	TE1(U, V, W, earth)		TE2(L+, L-)		TE3(L11, L21)	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	3.5	12	5.5	10	2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	3.5	12	5.5	10	2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	2	14	3.5	12	1.25 to 2	16 to 14

Power supply unit

MDS-DH-CV-185

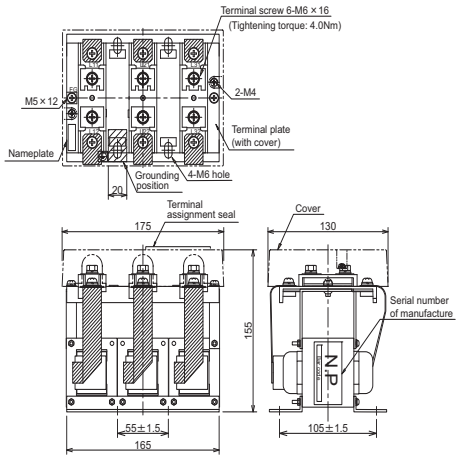
Specifications

Item		Specifications
30-minute rated output[kW]		18.5
Continuous rated output[kW]		15.0
Power facility capacity[kVA]		27.0
Output	Rated voltage[V]	513 to 648DC
	Rated current[A]	38
Input	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±3% max
	Rated voltage(50Hz)[V]	380 to 440AC
	Rated voltage(60Hz)[V]	380 to 480AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Rated current[A]	35
Control power	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±3% max
	Voltage(50Hz)[V]	380 to 440AC
	Voltage(60Hz)[V]	380 to 480AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Max. current[A]	0.1
	Max. rush current[A]	18
	Max. rush conductivity time[ms]	12
Heating value	Inside panel[W]	32
	Outside panel[W]	161
Cooling method		Forced air cooling
Mass[kg]		6.0
AC reactor		DH-AL-18.5K
Selection example of contactor (option part)		S-T35-AC400V
	Free-air thermal current[A]	50
	Selection current (for 380V input)[A]	40
	Rated output[kW]	18.5
Selection example of circuit protector (option part)		NF63-CW3P-40A
	Rated current[A]	40
	Selection current (for 380V input)[A]	40
	Rated output[kW]	18.5

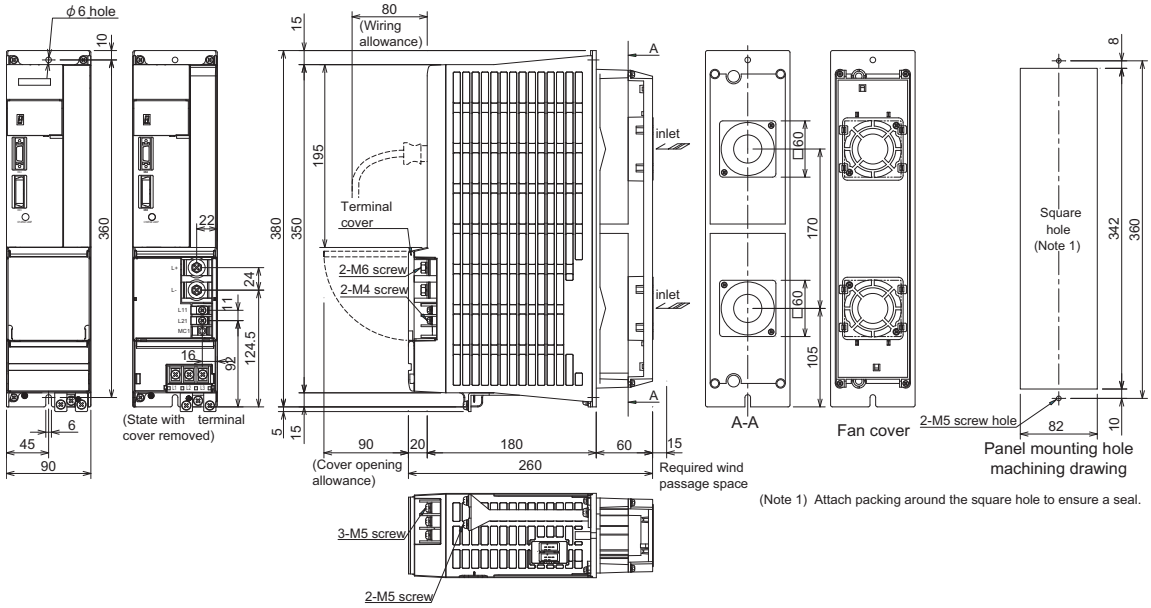


No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SW1	Power supply setting switch
(3)	CN4	Servo/spindle communication connector (primary)
(4)	CN9	Servo/spindle communication connector (secondary)
(5)	CHARGE LAMP	Converter voltage output charge-discharge status indication LED
(6)	CN23A	External emergency stop input connector
(7)	CN23B	Contactor control connector MC1,MC2 (Key way: Y type)
(8)	TE2	Main circuit power supply output terminal (DC output)
(9)	TE3	Control power input terminal (single-phase AC input)
(11)	TE1	Power input terminal (3-phase AC input)
(12)	PE	Grounding terminal

AC reactor



Outline dimension drawings [Unit : mm]



(Note 1) Attach packing around the square hole to ensure a seal.

Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s^2 (0.5G) / 49m/s^2 (5G)

Recommended wire

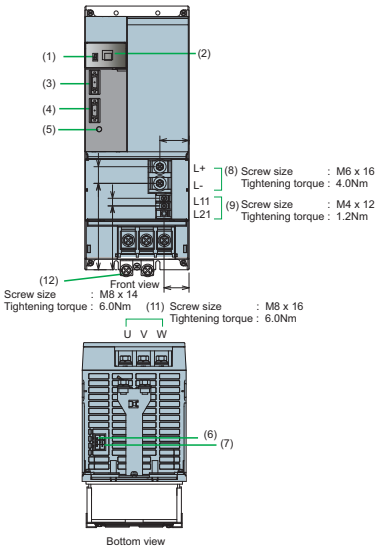
	Terminal name					
	TE1(U, V, W, earth)		TE2(L+, L-)		TE3(L11, L21)	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	14	6	14	6	2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	8	8	8	8	2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	5.5	10	5.5	10	1.25 to 2	16 to 14

Power supply unit

MDS-DH-CV-300

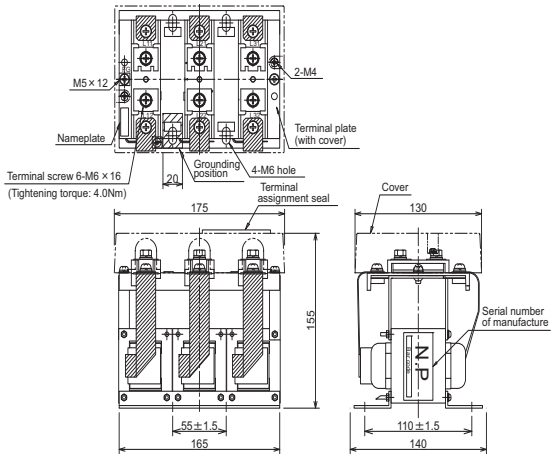
Specifications

Item		Specifications
30-minute rated output[kW]		30.0
Continuous rated output[kW]		26.0
Power facility capacity[kVA]		43.0
Output	Rated voltage[V]	513 to 648DC
	Rated current[A]	72
Input	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±3% max
	Rated voltage(50Hz)[V]	380 to 440AC
	Rated voltage(60Hz)[V]	380 to 480AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Rated current[A]	61
Control power	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±3% max
	Voltage(50Hz)[V]	380 to 440AC
	Voltage(60Hz)[V]	380 to 480AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Max. current[A]	0.1
	Max. rush current[A]	18
	Max. rush conductivity time[ms]	12
Heating value	Inside panel[W]	45
	Outside panel[W]	272
Cooling method		Forced air cooling
Mass[kg]		10.0
AC reactor		DH-AL-30K
Selection example of contactor (option part)		S-T50-AC400V
	Free-air thermal current[A]	80
	Selection current (for 380V input)[A]	65
	Rated output[kW]	30
Selection example of circuit protector (option part)		NF125-CW3P-75A
	Rated current[A]	75
	Selection current (for 380V input)[A]	65
	Rated output[kW]	30

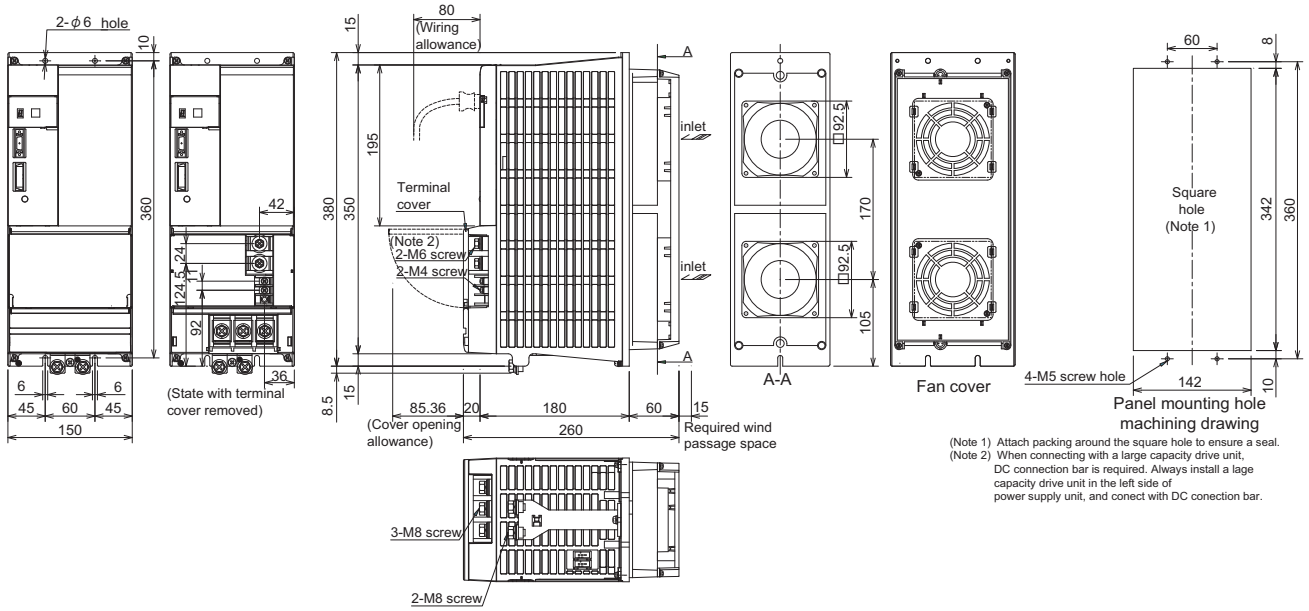


No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SW1	Power supply setting switch
(3)	CN4	Servo/spindle communication connector (primary)
(4)	CN9	Servo/spindle communication connector (secondary)
(5)	CHARGE LAMP	Converter voltage output charge-discharge status indication LED
(6)	CN23A	External emergency stop input connector
(7)	CN23B	Contactor control connector MC1,MC2 (Key way: Y type)
(8)	TE2	Main circuit power supply output terminal (DC output)
(9)	TE3	Control power input terminal (single-phase AC input)
(11)	TE1	Power input terminal (3-phase AC input)
(12)	PE	Grounding terminal

AC reactor



Outline dimension drawings [Unit : mm]



(Note 1) Attach packing around the square hole to ensure a seal.
(Note 2) When connecting with a large capacity drive unit, DC connection bar is required. Always install a lage capacity drive unit in the left side of power supply unit, and conect with DC conection bar.

Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s^2 (0.5G) / 49m/s^2 (5G)

Recommended wire

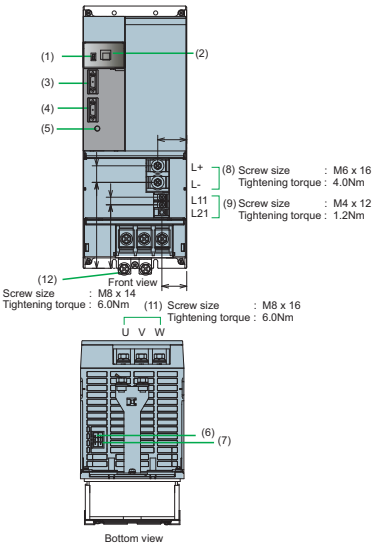
	Terminal name					
	TE1(U, V, W, earth)		TE2(L+, L-)		TE3(L11, L21)	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	22	4	38	2	2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	14	6	22	4	2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	14	6	14	6	1.25 to 2	16 to 14

Power supply unit

MDS-DH-CV-370

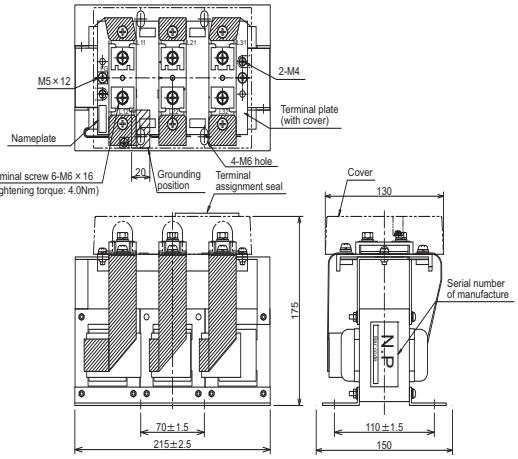
Specifications

Item		Specifications
30-minute rated output[kW]		37.0
Continuous rated output[kW]		30.0
Power facility capacity[kVA]		53.0
Output	Rated voltage[V]	513 to 648DC
	Rated current[A]	82
Input	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±3% max
	Rated voltage(50Hz)[V]	380 to 440AC
	Rated voltage(60Hz)[V]	380 to 480AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Rated current[A]	70
Control power	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±3% max
	Voltage(50Hz)[V]	380 to 440AC
	Voltage(60Hz)[V]	380 to 480AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Max. current[A]	0.1
	Max. rush current[A]	18
	Max. rush conductivity time[ms]	12
Heating value	Inside panel[W]	53
	Outside panel[W]	343
Cooling method		Forced air cooling
Mass[kg]		10.0
AC reactor		DH-AL-37K
Selection example of contactor (option part)		S-T65-AC400V
	Free-air thermal current[A]	100
	Selection current (for 380V input)[A]	80
	Rated output[kW]	37
Selection example of circuit protector (option part)		NF125-CW3P-100A
	Rated current[A]	100
	Selection current (for 380V input)[A]	80
	Rated output[kW]	37

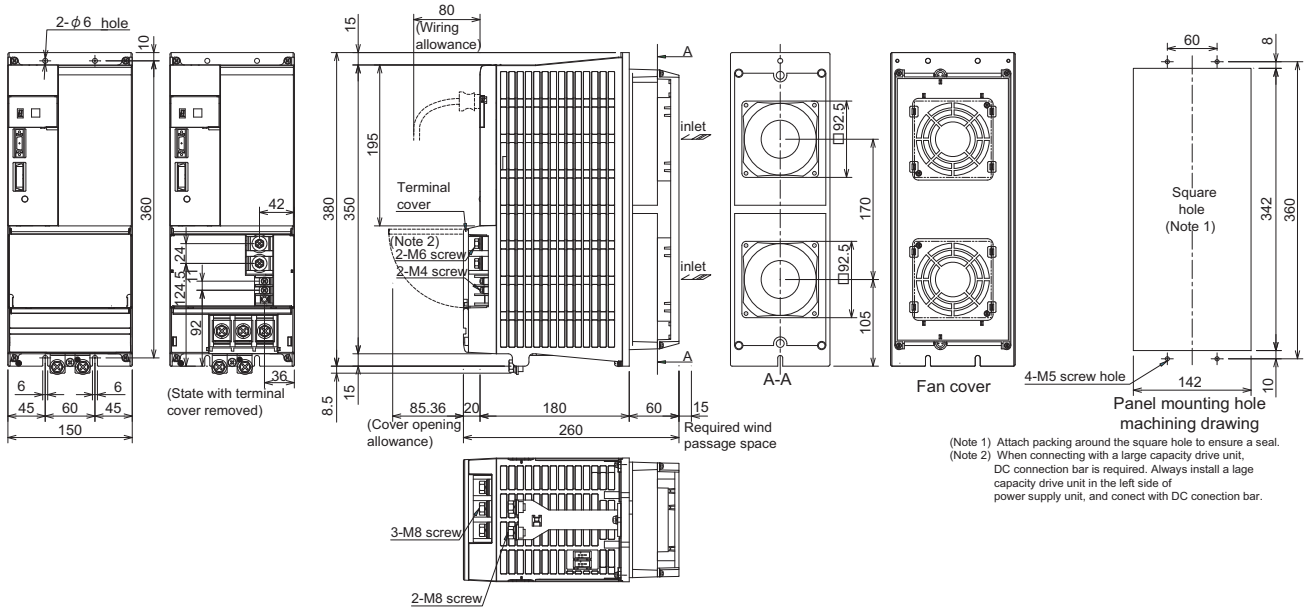


No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SW1	Power supply setting switch
(3)	CN4	Servo/spindle communication connector (primary)
(4)	CN9	Servo/spindle communication connector (secondary)
(5)	CHARGE LAMP	Converter voltage output charge-discharge status indication LED
(6)	CN23A	External emergency stop input connector
(7)	CN23B	Contactor control connector MC1,MC2 (Key way: Y type)
(8)	TE2	Main circuit power supply output terminal (DC output)
(9)	TE3	Control power input terminal (single-phase AC input)
(11)	TE1	Power input terminal (3-phase AC input)
(12)	PE	Grounding terminal

AC reactor



Outline dimension drawings [Unit : mm]



(Note 1) Attach packing around the square hole to ensure a seal.
(Note 2) When connecting with a large capacity drive unit, DC connection bar is required. Always install a lage capacity drive unit in the left side of power supply unit, and conect with DC conection bar.

Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s^2 (0.5G) / 49m/s^2 (5G)

Recommended wire

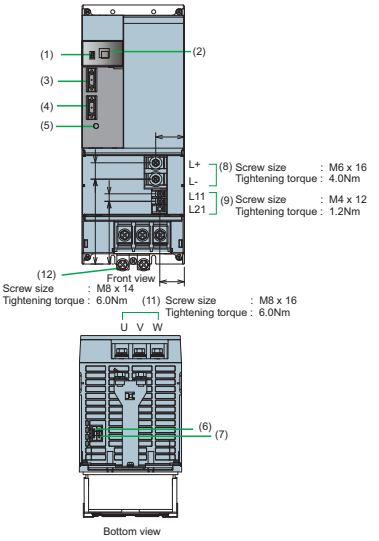
	Terminal name					
	TE1(U, V, W, earth)		TE2(L+, L-)		TE3(L11, L21)	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	38	2	50	1	2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	22	4	22	4	2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	14	6	22	4	1.25 to 2	16 to 14

Power supply unit

MDS-DH-CV-450

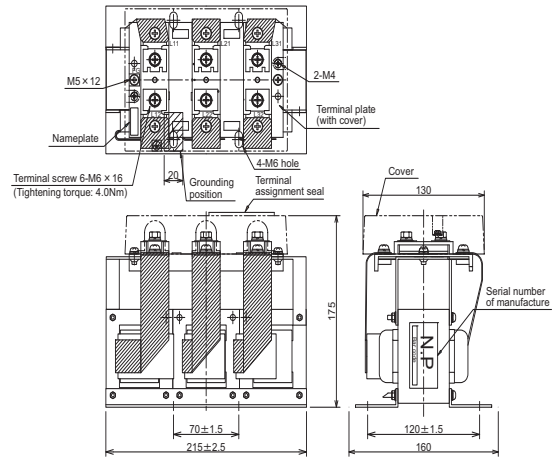
Specifications

Item		Specifications
30-minute rated output[kW]		45.0
Continuous rated output[kW]		37.0
Power facility capacity[kVA]		64.0
Output	Rated voltage[V]	513 to 648DC
	Rated current[A]	99
Input	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±3% max
	Rated voltage(50Hz)[V]	380 to 440AC
	Rated voltage(60Hz)[V]	380 to 480AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Rated current[A]	85
Control power	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±3% max
	Voltage(50Hz)[V]	380 to 440AC
	Voltage(60Hz)[V]	380 to 480AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Max. current[A]	0.1
	Max. rush current[A]	18
	Max. rush conductivity time[ms]	12
Heating value	Inside panel[W]	104
	Outside panel[W]	392
Cooling method		Forced air cooling
Mass[kg]		10.0
AC reactor		DH-AL-45K
Selection example of contactor (option part)		S-T65-AC400V
	Free-air thermal current[A]	100
	Selection current (for 380V input)[A]	98
	Rated output[kW]	45
Selection example of circuit protector (option part)		NF125-CW3P-100A
	Rated current[A]	100
	Selection current (for 380V input)[A]	98
	Rated output[kW]	45

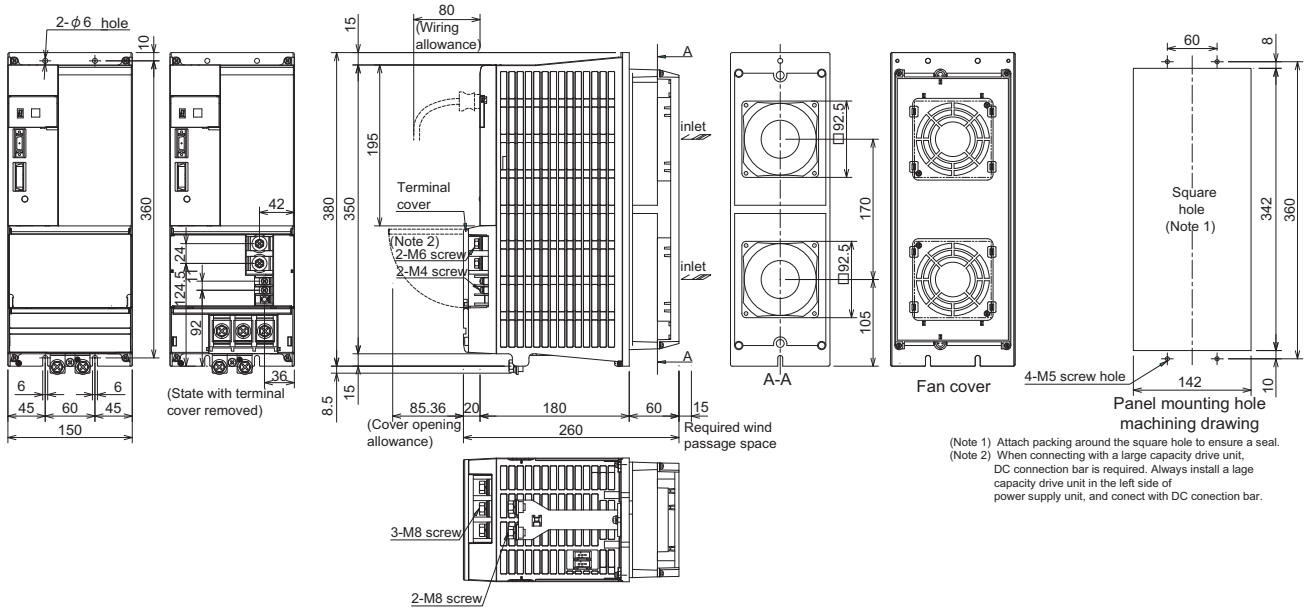


No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SW1	Power supply setting switch
(3)	CN4	Servo/spindle communication connector (primary)
(4)	CN9	Servo/spindle communication connector (secondary)
(5)	CHARGE LAMP	Converter voltage output charge-discharge status indication LED
(6)	CN23A	External emergency stop input connector
(7)	CN23B	Contactor control connector MC1,MC2 (Key way: Y type)
(8)	TE2	Main circuit power supply output terminal (DC output)
(9)	TE3	Control power input terminal (single-phase AC input)
(11)	TE1	Power input terminal (3-phase AC input)
(12)	PE	Grounding terminal

AC reactor



Outline dimension drawings [Unit : mm]



(Note 1) Attach packing around the square hole to ensure a seal.
(Note 2) When connecting with a large capacity drive unit, DC connection bar is required. Always install a lage capacity drive unit in the left side of power supply unit, and conect with DC conection bar.

Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s^2 (0.5G) / 49m/s^2 (5G)

Recommended wire

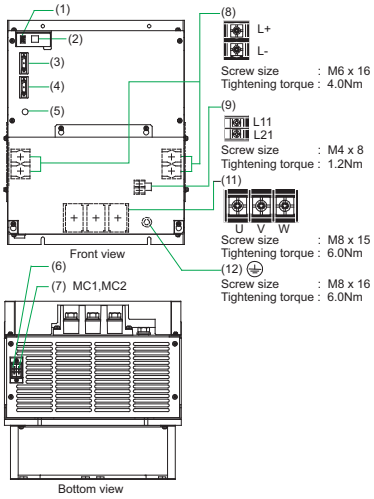
	Terminal name					
	TE1(U, V, W, earth)		TE2(L+, L-)		TE3(L11, L21)	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	38	2	60	1/0	2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	22	4	38 or bar enclosed	2 or bar enclosed	2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	22	4	30	3	1.25 to 2	16 to 14

Power supply unit

MDS-DH-CV-550

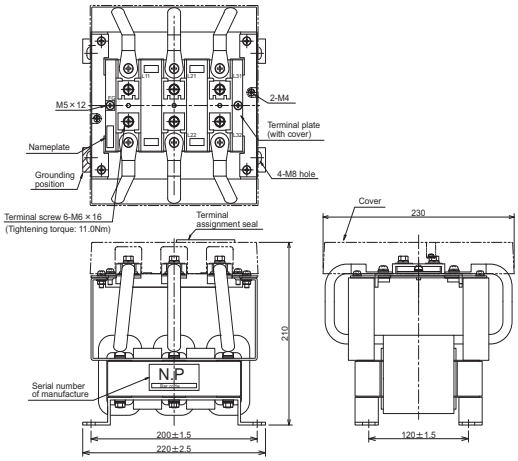
Specifications

Item		Specifications
30-minute rated output[kW]		55.0
Continuous rated output[kW]		45.0
Power facility capacity[kVA]		78.0
Output	Rated voltage[V]	513 to 648DC
	Rated current[A]	119
Input	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±3% max
	Rated voltage(50Hz)[V]	380 to 440AC
	Rated voltage(60Hz)[V]	380 to 480AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Rated current[A]	106
Control power	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±3% max
	Voltage(50Hz)[V]	380 to 440AC
	Voltage(60Hz)[V]	380 to 480AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Max. current[A]	0.1
	Max. rush current[A]	18
	Max. rush conductivity time[ms]	12
Heating value	Inside panel[W]	164
	Outside panel[W]	431
Cooling method		Forced air cooling
Mass[kg]		25.5
AC reactor		DH-AL-55K
Selection example of contactor (option part)		S-T80-AC400V
	Free-air thermal current[A]	135
	Selection current (for 380V input)[A]	119
	Rated output[kW]	55
Selection example of circuit protector (option part)		NF250-CW3P-125A
	Rated current[A]	125
	Selection current (for 380V input)[A]	119
	Rated output[kW]	55

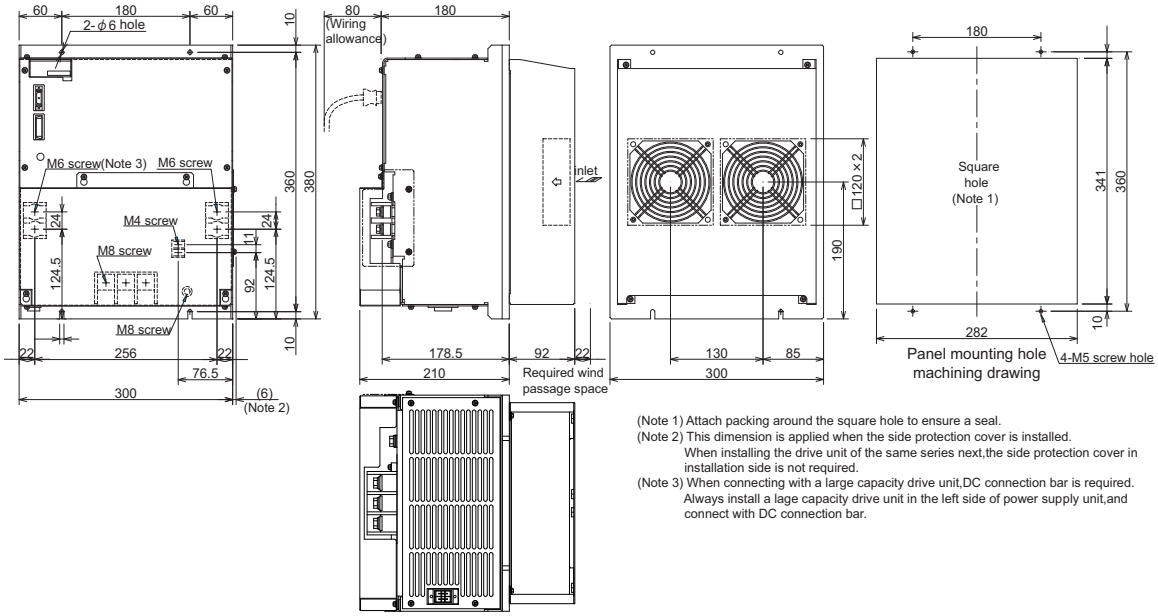


No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SW1	Power supply setting switch
(3)	CN4	Servo/spindle communication connector (primary)
(4)	CN9	Servo/spindle communication connector (secondary)
(5)	CHARGE LAMP	Converter voltage output charge-discharge status indication LED
(6)	CN23A	External emergency stop input connector
(7)	CN23B	Contactor control connector MC1,MC2 (Key way: Y type)
(8)	TE2	Main circuit power supply output terminal (DC output)
(9)	TE3	Control power input terminal (single-phase AC input)
(11)	TE1	Power input terminal (3-phase AC input)
(12)	PE	Grounding terminal

AC reactor



Outline dimension drawings [Unit : mm]



(Note 1) Attach packing around the square hole to ensure a seal.
(Note 2) This dimension is applied when the side protection cover is installed.
When installing the drive unit of the same series next,the side protection cover in installation side is not required.
(Note 3) When connecting with a large capacity drive unit,DC connection bar is required.
Always install a lage capacity drive unit in the left side of power supply unit,and connect with DC connection bar.

Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s^2 (0.5G) / 49m/s^2 (5G)

Recommended wire

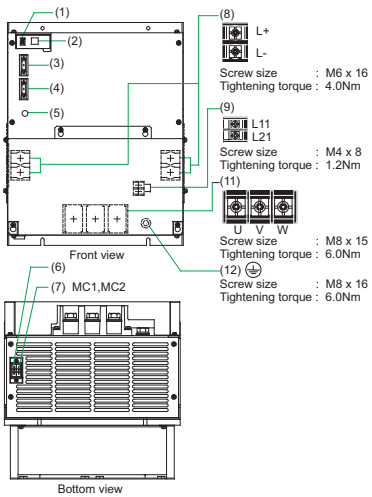
	Terminal name					
	TE1(U, V, W, earth)		TE2(L+, L-)		TE3(L11, L21)	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	-	-	Bar enclosed		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	38	2			2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	22	4			1.25 to 2	16 to 14

Power supply unit

MDS-DH-CV-750

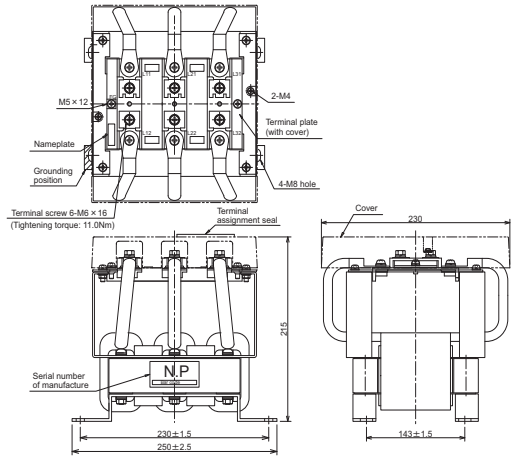
Specifications

Item		Specifications
30-minute rated output[kW]		75.0
Continuous rated output[kW]		55.0
Power facility capacity[kVA]		107.0
Output	Rated voltage[V]	513 to 648DC
	Rated current[A]	150
Input	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±3% max
	Rated voltage(50Hz)[V]	380 to 440AC
	Rated voltage(60Hz)[V]	380 to 480AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Rated current[A]	130
Control power	Frequency[Hz]	50 / 60
	Tolerable frequency fluctuation[%]	±3% max
	Voltage(50Hz)[V]	380 to 440AC
	Voltage(60Hz)[V]	380 to 480AC
	Tolerable voltage fluctuation[%]	+10%, -15%
	Max. current[A]	0.1
	Max. rush current[A]	18
	Max. rush conductivity time[ms]	12
Heating value	Inside panel[W]	228
	Outside panel[W]	614
Cooling method		Forced air cooling
Mass[kg]		25.5
AC reactor		DH-AL-75K
Selection example of contactor (option part)		S-N150-AC400V
	Free-air thermal current[A]	200
	Selection current (for 380V input)[A]	163
	Rated output[kW]	75
Selection example of circuit protector (option part)		NF250-CW3P-200A
	Rated current[A]	200
	Selection current (for 380V input)[A]	163
	Rated output[kW]	75

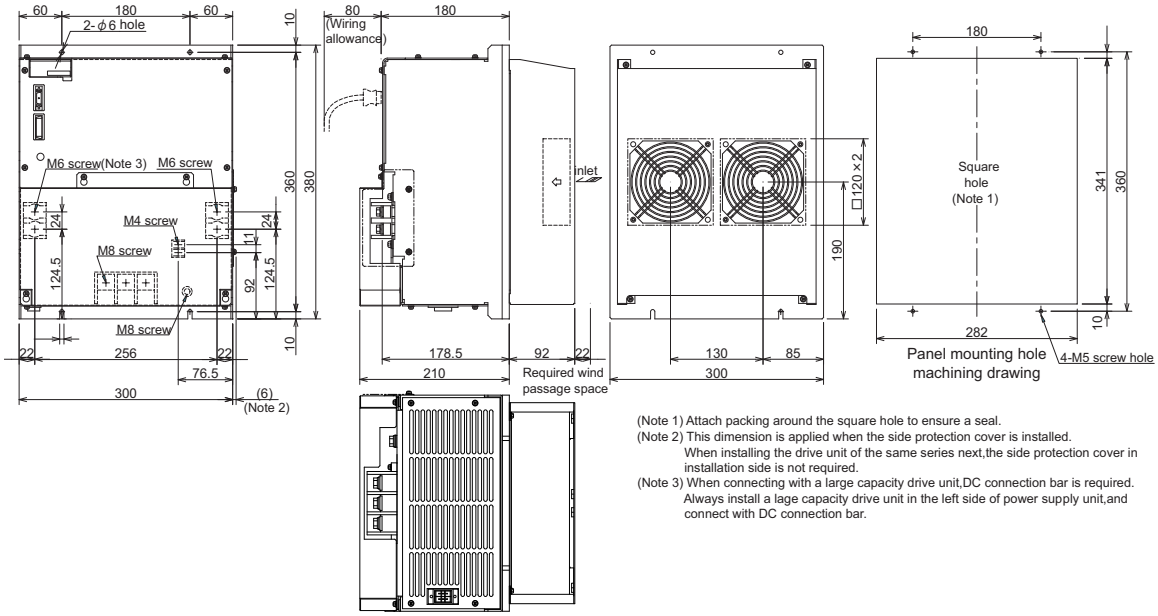


No.	Name	Description
(1)	LED	Unit status indication LED
(2)	SW1	Power supply setting switch
(3)	CN4	Servo/spindle communication connector (primary)
(4)	CN9	Servo/spindle communication connector (secondary)
(5)	CHARGE LAMP	Converter voltage output charge-discharge status indication LED
(6)	CN23A	External emergency stop input connector
(7)	CN23B	Contactor control connector MC1,MC2 (Key way: Y type)
(8)	TE2	Main circuit power supply output terminal (DC output)
(9)	TE3	Control power input terminal (single-phase AC input)
(11)	TE1	Power input terminal (3-phase AC input)
(12)	PE	Grounding terminal

AC reactor



Outline dimension drawings [Unit : mm]



(Note 1) Attach packing around the square hole to ensure a seal.
(Note 2) This dimension is applied when the side protection cover is installed. When installing the drive unit of the same series next,the side protection cover in installation side is not required.
(Note 3) When connecting with a large capacity drive unit,DC connection bar is required. Always install a lage capacity drive unit in the left side of power supply unit,and connect with DC connection bar.

Environmental conditions

Item	Conditions
Ambient temperature	Operation: 0°C to +55°C(with no freezing) Storage/transportation: -15°C to +70°C(with no freezing)
Ambient humidity	Operation: 90% RH or less(with no dew condensation) Storage/transportation: 90% RH or less(with no dew condensation)
Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or conductive fine particles
Altitude	Operation/storage: 1000m or less above sea level Transportation: 13000m or less above sea level
Vibration/impact	4.9m/s^2 (0.5G) / 49m/s^2 (5G)

Recommended wire

	Terminal name					
	TE1(U, V, W, earth)		TE2(L+, L-)		TE3(L11, L21)	
Types	mm^2	AWG	mm^2	AWG	mm^2	AWG
600V vinyl insulated wire (IV wire) 60°C product (Example according to IEC/EN60204-1, UL508C)	-	-	Bar enclosed		2	14
600V double (heat proof) vinyl insulated wire (HIV wire) 75°C product (Example according to IEC/EN60204-1, UL508C)	60	1/0			2	14
600V bridge polyethylene insulated wire (IC) 105°C product (Example according to JEAC8001)	38	2			1.25 to 2	16 to 14

Dynamic brake unit (MDS-D-DBU)

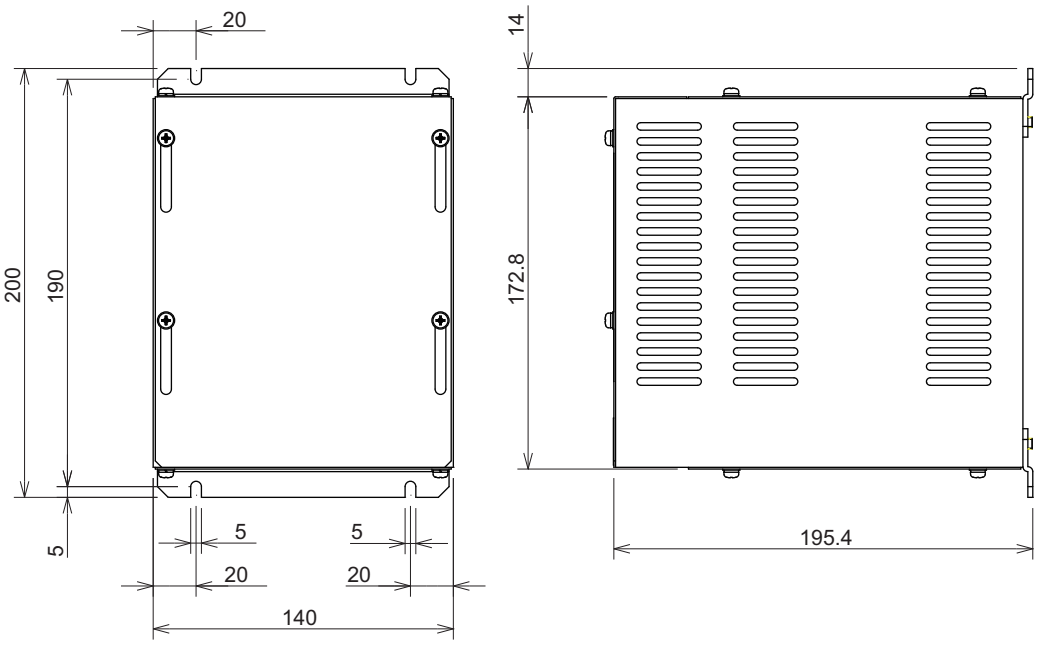
The MDS-DH-V1-160W or larger units do not have dynamic brakes built in, so install an external dynamic brake unit.

(1) Specifications

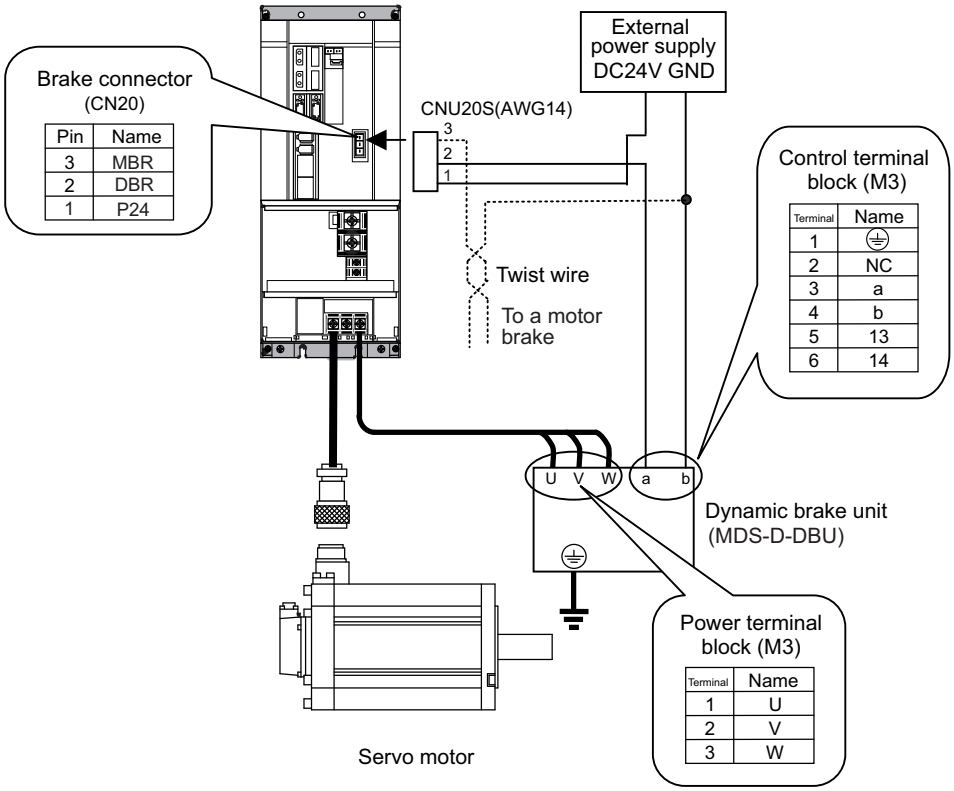
Type	Coil specifications	Wire size	Compatible drive unit	Mass (kg)
MDS-D-DBU	24VDC 160mA	5.5mm^2 or more (For IV wire)	MDS-DH-V1-160W or larger	3kg

(2) Outline dimension drawings
MDS-D-DBU

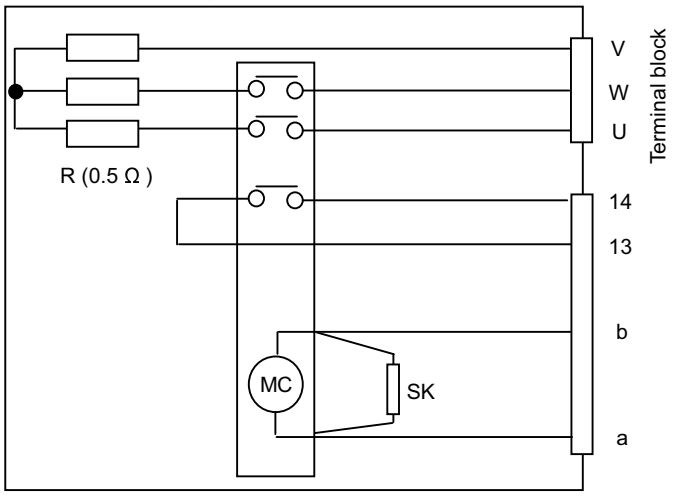
[Unit: mm]



(3) Connecting with the servo drive unit



Internal circuit diagram



⚠ CAUTION

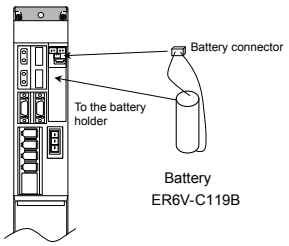
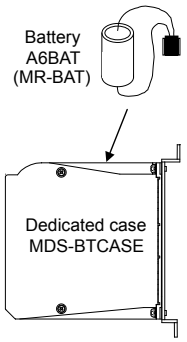
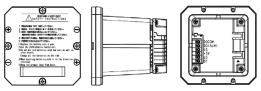
Correctly wire the dynamic brake unit to the servo drive unit.
Do not use for applications other than emergencies (normal braking, etc.). The internal resistor could heat up, and lead to fires or faults.

POINT

When you use a motor with a brake, please wire (between 1pin and 3pin) for the CN20 connector.

Battery (ER6V-C119B, A6BAT, MDS-BTBOX-36)

This battery option may be required to establish absolute position system.

Type	ER6V-C119B	A6BAT(MR-BAT)	MDS-BTBOX-36
Installation type	Drive unit with battery holder type	Dedicated case type	Unit and battery integration type
Hazard class	Not applicable	Not applicable (24 or less)	Not applicable
Number of connectable axes	Up to 3 axes	Up to 8 axes (When using dedicated case)	Up to 8 axes
Battery change	Possible	Possible	Possible
Appearance	(1) 	(2) 	(3) 

⚠ CAUTION

1. When transporting lithium batteries with means such as by air transport, measures corresponding to the United Nations Dangerous Goods Regulations must be taken.
2. The lithium battery must be transported according to the rules set forth by the International Civil Aviation Organization (ICAO), International Air Transportation Association (IATA), International Maritime Organization (IMO), and United States Department of Transportation (DOT), etc. The packaging methods, correct transportation methods, and special regulations are specified according to the quantity of lithium alloys. The battery unit exported from Mitsubishi is packaged in a container (UN approved part) satisfying the standards set forth in this UN Advisory.
3. To protect the absolute value, do not shut off the servo drive unit control power supply if the battery voltage becomes low (warning 9F).
4. Contact the Service Center when replacing the cell battery.
5. The battery life (backup time) is greatly affected by the working ambient temperature. The above data is the theoretical value for when the battery is used 8 hours a day/240 days a year at an ambient temperature of 25°C. Generally, if the ambient temperature increases, the backup time and useful life will both decrease.

POINT A6BAT is a battery with same specifications as MR-BAT.

(1) Cell battery (ER6V-C119B)

(a) Specifications

Battery option type		Cell battery ER6V-C119B (Note 1)
Battery model name		ER6V
Nominal voltage		3.6V
Nominal capacity		2000mAh
Battery safety	Hazard class	-
	Battery shape	Single battery
	Number of batteries used	ER6V x 1
	Lithium alloy content	0.7g
	Mercury content	1g or less
Number of connectable axes		Up to 3 axes (Note 3)
Battery continuous backup time		Up to 2 axes: Approx. 10000 hours 3 axes connected: Approx. 6600 hours
Battery useful life (From date of unit manufacture)		7 years
Data save time in battery replacement		HF-H/HP-H/HC-H series: Approx. 20 hours at time of delivery, approx. 10 hours after 5 years
Back up time from battery warning to alarm occurrence (Note 2)		Up to 2 axes: Approx. 100 hours 3 axes connected: Approx. 60 hours
Mass		20g

(Note 1) ER6V-C119B is a battery built in a servo drive unit. Install this battery only in the servo drive unit that executes absolute position control.

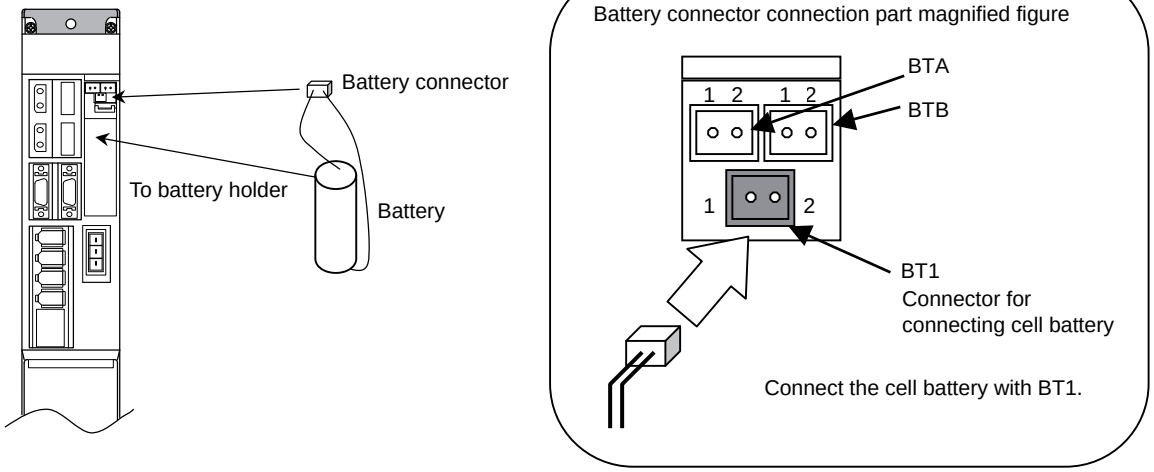
(Note 2) This time is a guideline, so does not guarantee the back up time. Replace the battery with a new battery as soon as a battery warning occurs.

(Note 3) When using ball screw side encoder OSA166ET2NA/OSA105ET2A, both ball screw side encoder and motor side encoder need to be backed up by a battery, so the number of load shaft should be two.

(b) Installing the cell battery

Open the upper front cover of the servo drive unit.

Connect the battery connector and then put the battery inside.



(Note) When using a cell battery, do not connect the battery unit, MDS-A-BT and MDS-BTBOX-36.

POINT

When using a cell battery built-in drive unit, the wiring between units is not required. The cell battery can be changed in each drive unit.

(2) Cell battery (A6BAT)

Always use the cell battery (A6BAT) in combination with the dedicated case (MDS-BTCASE).

(a) Specifications

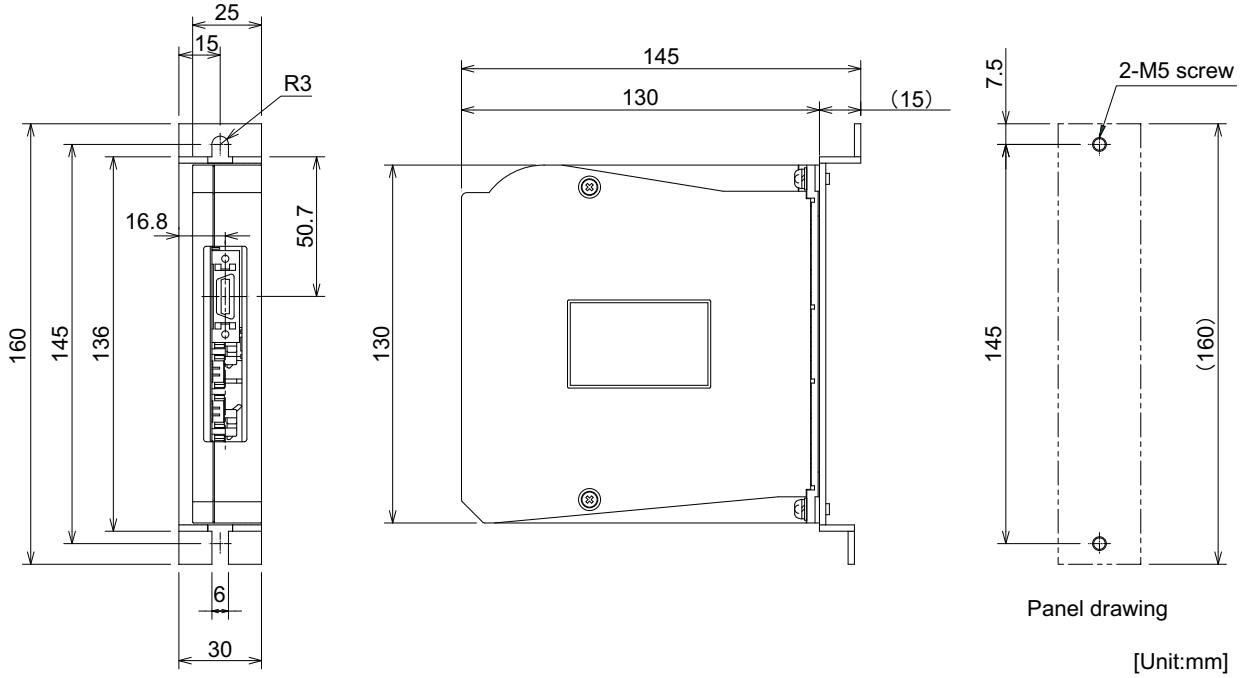
Battery option type		Cell battery
		A6BAT (MR-BAT)
Battery model name		ER17330V
Nominal voltage		3.6V
Nominal capacity		1700mAh
Battery safety	Hazard class	-
	Battery shape	Single battery
	Number of batteries used	A6BAT (MR-BAT) x 1
	Lithium alloy content	0.48g
	Mercury content	1g or less
Number of connectable axes		1 axis / (per 1 battery)
Battery continuous backup time		Approx. 10000 hours
Battery useful life (From date of unit manufacture)		5 years
Data save time in battery replacement		HF-H/HP-H/HC-H series: Approx. 20 hours at time of delivery, approx. 10 hours after 5 years
Back up time from battery warning to alarm occurrence (Note)		Approx. 80 hours
Mass		17g

(Note) This time is a guideline, so does not guarantee the back up time. Replace the battery with a new battery as soon as a battery warning occurs.

(b) Specifications of the dedicated case MDS-BTCASE

Type	MDS-BTCASE
Number of batteries installed	Up to 8 A6BATs (MR-BATs) (Install either 2, 4, 6 or 8 A6BATs (MR-BATs))
Number of connectable axes	Max. 8 axes (It varies depending on the number of batteries installed.) When A6BAT (MR-BAT) x 2, 1 to 2 axis/axes When A6BAT (MR-BAT) x 4, 3 to 4 axes When A6BAT (MR-BAT) x 6, 5 to 6 axes When A6BAT (MR-BAT) x 8, 7 to 8 axes

(c) **Outline dimension drawing of the dedicated case MDS-BTCASE**



(3) Battery box (MDS-BTBOX-36)

(a) Specifications

Battery option type	Battery box
	MDS-BTBOX-36
Battery model name (Note 1)	size-D alkaline batteries LR20 x 4 pieces
Nominal voltage	3.6V (Unit output), 1.5V (Isolated battery)
Number of connectable axes	Up to 8 axes
Battery continuous backup time (Note 2)	Approx. 10000 hours (when 8 axes are connected, cumulative time in non-energized state)
Back up time from battery warning to alarm occurrence (Note 2)	Approx. 336 hours (when 8 axes are connected)

(Note 1) Install commercially-available alkaline dry batteries into MDS-BTBOX-36. The batteries should be procured by customers. Make sure to use new batteries that have not passed the expiration date. We recommend you to replace the batteries in the one-year cycle.

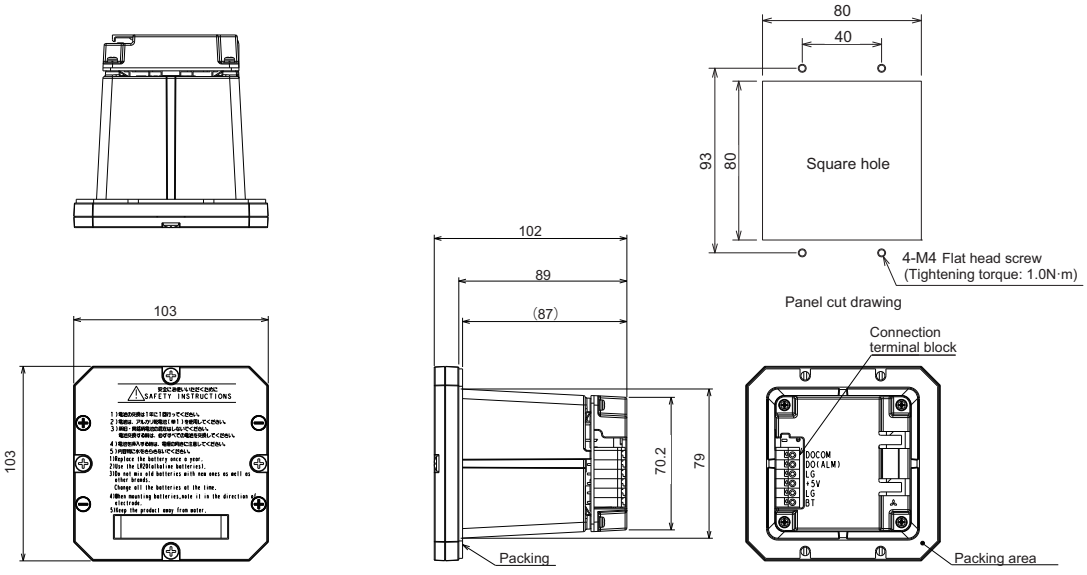
(Note 2) This time is a guideline, so does not guarantee the back up time. Replace the battery with a new battery as soon as a battery warning (9F) occurs.

(b) Explanation of terminals

		Name	Description
(1)	Power supply output for absolute position encoder backup	BT	3.6V output for absolute position encoder backup
(2)		LG	Ground
(3)	Power supply input for battery voltage drop detection circuit	+5V	5V power supply input for battery voltage drop detection circuit
(4)		LG	Ground
(5)	Battery voltage drop warning signal output	DO(ALM)	Battery voltage drop warning output
(6)		DOCOM	DO output common

(c) Outline dimension drawings

[Unit: mm]



POINT

As soon as the battery warning has occurred, replace the batteries with new ones.
Make sure to use new batteries that have not passed the expiration date. We recommend you to replace the batteries in the one-year cycle.

⚠ CAUTION

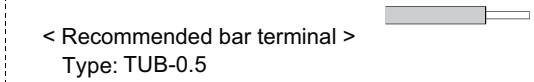
When installing the battery box on the panel, it may be damaged if the screw is tightened too much. Make sure the tightening torque of the screw.

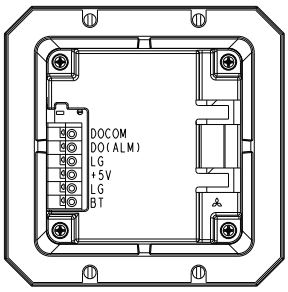
(d) Cable connection procedure

When connecting the terminal block, select a cable for the terminal block referring to the applicable size as a guide. Connect the cable by crimping the bare conductor or bar terminal. Do not pre-solder the wire.

< Range of applicable terminal block cable >
Twisted wire: 0.2mm^2 to 1.25mm^2

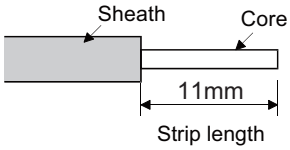
< Recommended bar terminal >
Type: TUB-0.5
Crimping tool: YHT-2622





- Processing of power insulator

The strip length of the wire insulator should be 11mm.



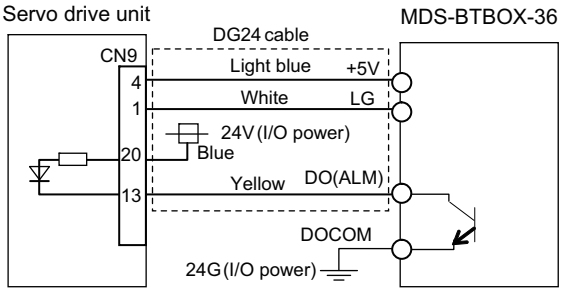
Retwist and straighten the core as shown below.

Unraveling or bending of core

Make sure to retwist and straighten the core

(e) Wiring of the battery voltage drop warning output

The battery voltage drop warning is detected in the MDS-BTBOX-36 and output to the servo drive unit as digital signal.Connect the battery voltage drop warning signal to one of the servo drive units supported by MDS-BTBOX-36. For the connected servo axis, set the servo parameter "SV082/bitF-C" to "2" to enable this signal input. When using 2 or 3-axis drive unit, set the value to one of the axes and set other axes in the same unit to "0" (No signal).



Battery voltage drop warning signal connection diagram

(f) When backing up for more than 8 axes

Add a MDS-BTBOX-36 so that the number of connectable axes for a battery unit is 8 axes or less.

For all of servo drive units supported by one MDS-BTBOX-36, start the control powers ON simultaneously.

⚠ CAUTION

1. The battery voltage drop warning signal and SLS (Safely Limited Speed) function door state signal cannot be connected to the same drive unit. To use these function together as a system, connect to the different drive unit.
2. Battery voltage drop warning (9F) can also occur when the cable between the battery box and drive unit is broken.
3. For 2-axis or 3-axis drive unit, the parameter error "E4" or drivers communication error "82" occurs at all the axes when the setting of SV082(SSF5)/bitF-C differs according to axes (except 0 setting).
4. The drive unit which is connected to the battery box and cell battery cannot be used together.
5. Replace the batteries with new ones without turning the control power of the drive unit OFF immediately after the battery voltage drop alarm (9F) has been detected.
6. Replace the batteries while applying the control power of all drive units which are connected to the battery box.
7. When changing the wiring of the CN9 control input, change after SV082(SSF5)/bitF-C is set to 0. Otherwise unexpected alarms can be detected because of a mismatch of the control input signal and setting parameter.
8. Battery voltage drop warning (9F) is released by turning the drive unit power ON again after replacing the battery.

(4) Converged battery option

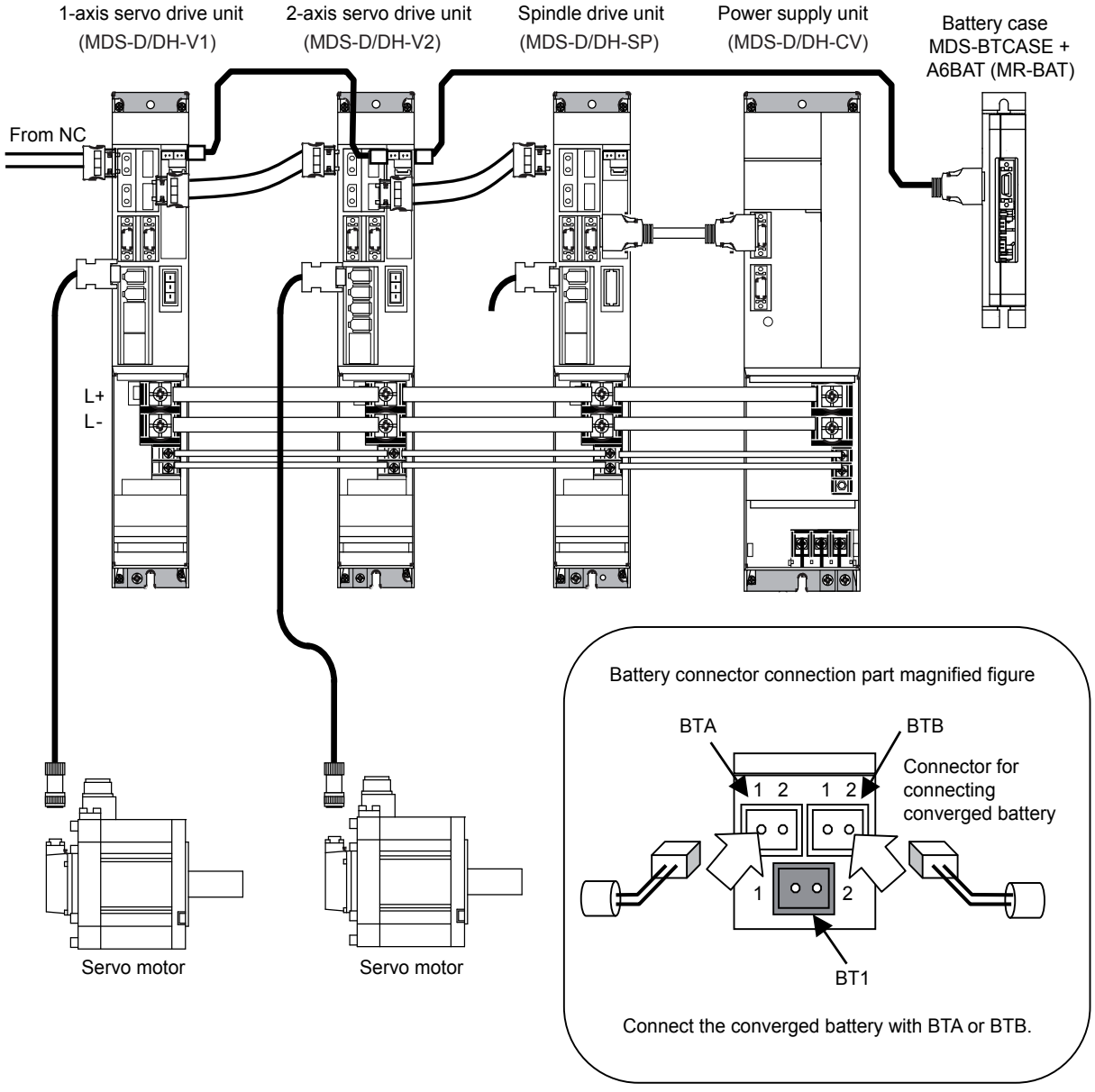
When using the following battery options, the wiring between units which configure an absolute position system is required.

Battery option type	Installation type	Battery charge
A6BAT (MR-BAT)	Dedicated case type (built-in MDS-BTCASE)	Possible
MDS-BTBOX-36	Unit and battery integration type	Possible

System configuration

<A6BAT(MR-BAT) Series>

(a) MDS-DH Series

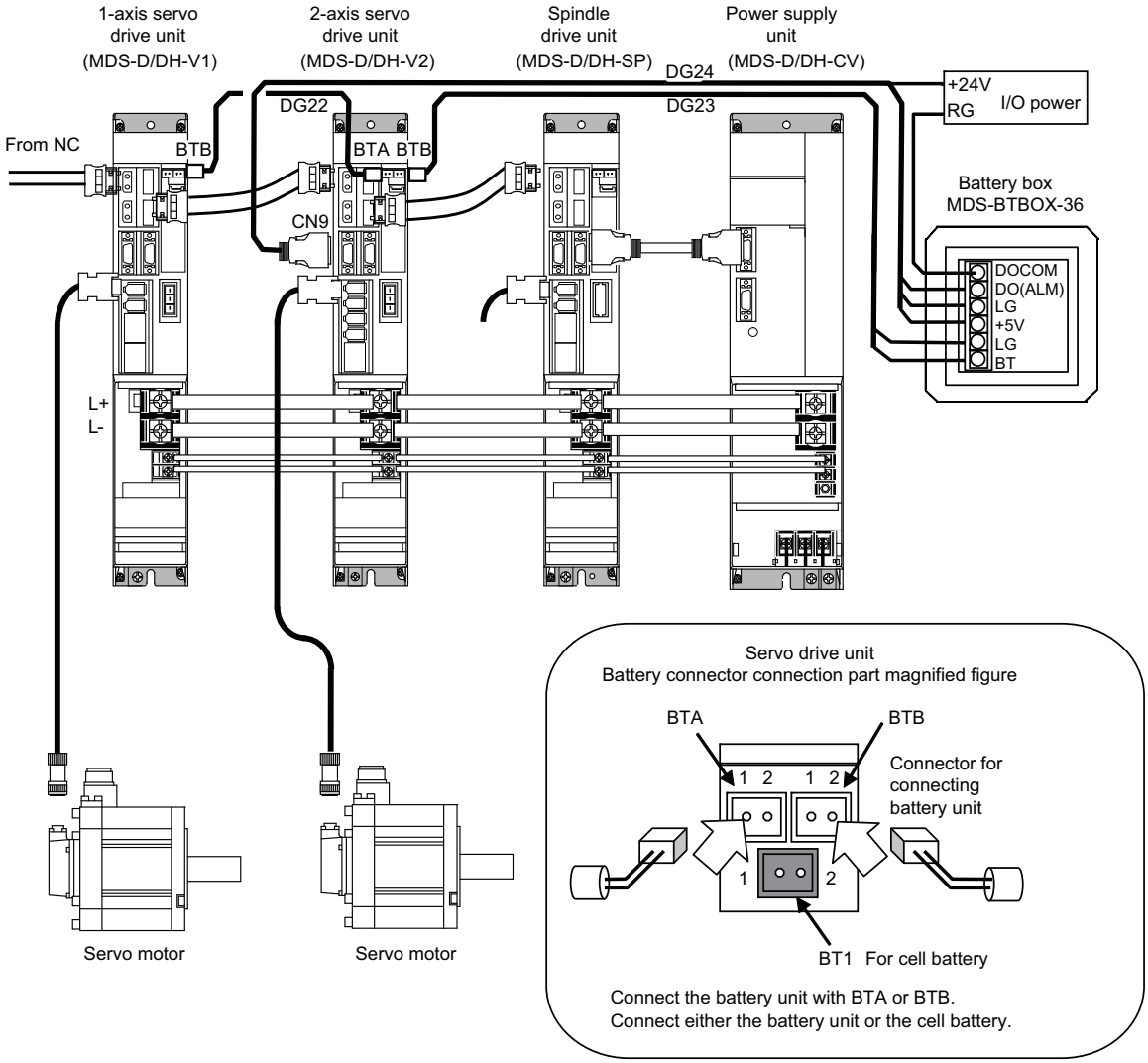


POINT

1. This wiring is not required for the drive unit or spindle drive unit which is not an absolute system.
2. Use a shield cable for wiring between drive units.
   The drive unit could malfunction.

< MDS-BTBOX-36 >

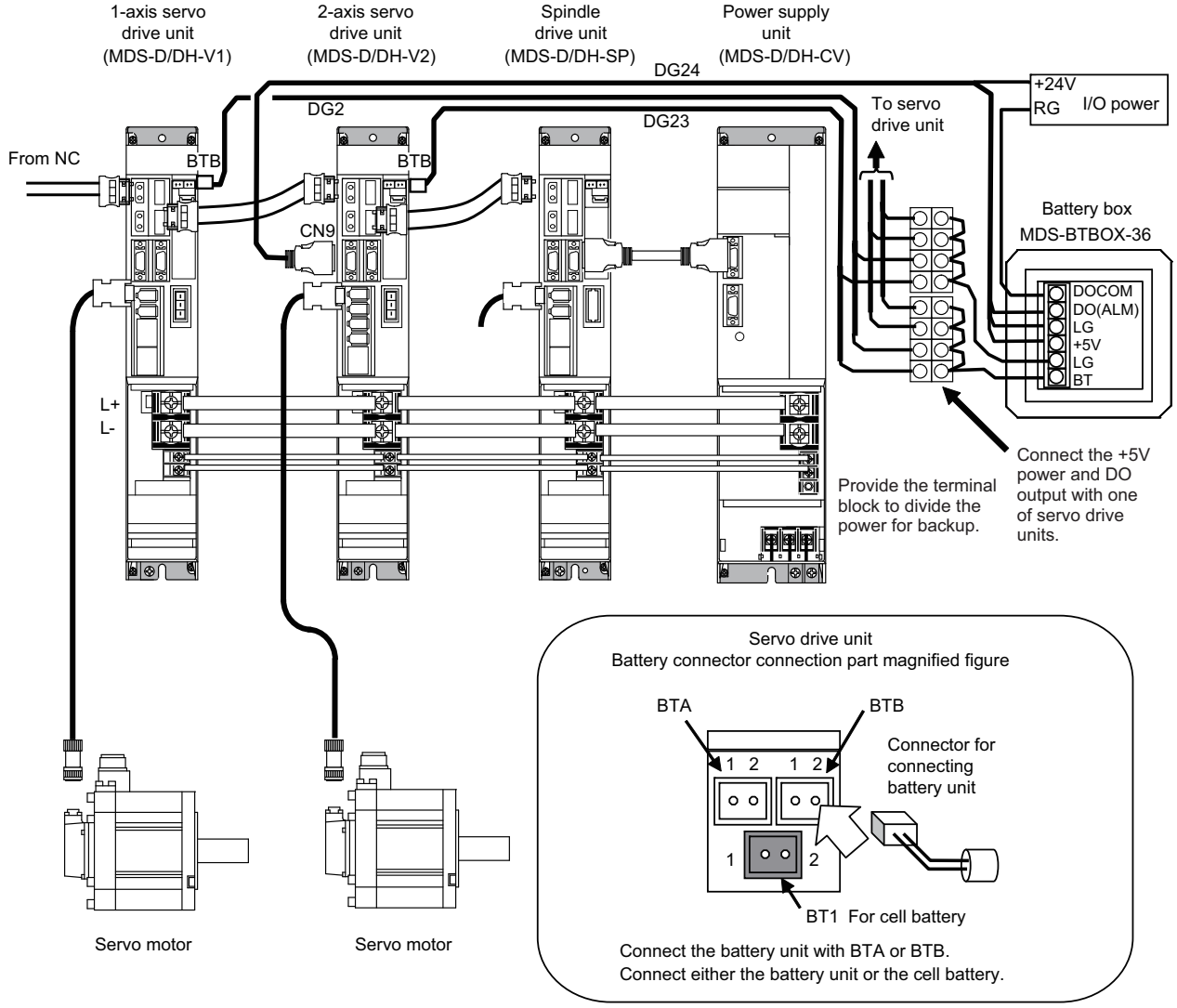
(a) MDS-DH-V1/V2 Series connected in serial



⚠CAUTION

1. 24V power for DO output must always be turned ON before the NC power input.
2. Spindle drive unit has no battery voltage drop warning function. Wiring to CN9 of drive unit must be always connected to servo drive unit.
3. The total length of battery cable (from the battery unit to the last connected drive unit) must be 3m or less.

(b) MDS-DH-V1/V2 Series connected in parallel



⚠ CAUTION

1. 24V power for DO output must always be turned ON before the NC power input.
2. Spindle drive unit has no battery voltage drop warning function. Wiring to CN9 of drive unit must be always connected to servo drive unit.
3. The total length of battery cable (from the battery unit to the last connected drive unit) must be 3m or less.

Encoder for spindle motor

(1) No-variable speed control

(When spindle and motor are directly coupled or coupled with a 1:1 gear ratio)

Spindle control item	Control specifications	Without spindle side encoder	With spindle side encoder
Spindle control	Normal cutting control	●	This normally is not used for no-variable speed control.
	Constant surface speed control (lathe)	●	
	Thread cutting (lathe)	●	
Orientation control	1-point orientation control	●	
	Multi-point orientation control	●	
	Orientation indexing	●	
Synchronous tap control	Standard synchronous tap	●	
	Synchronous tap after zero point return	●	
Spindle synchronous control	Without phase alignment function	●	
	With phase alignment function	●	
C-axis control	C-axis control	● (Note 2)	●

(Note 1) ● :Control possible
x :Control not possible

(Note 2) When spindle and motor are coupled with a 1:1 gear ratio, use of a spindle side encoder is recommended to assure the precision.

(2) Variable speed control

(When using V-belt, or when spindle and motor are connected with a gear ratio other than 1:1)

Spindle control item	Control specifications	Without spindle side encoder	With spindle side encoder		
			TS5690/ERM280/ MPCI Series	OSE-1024	Proximity switch
Spindle control	Normal cutting control	●	●	●	●
	Constant surface speed control (lathe)	● (Note 2)	●	●	●(Note 2)
	Thread cutting (lathe)	x	●	●	x
Orientation control	1-point orientation control	x	●	●	●(Note 4)
	Multi-point orientation control	x	●	●	x
	Orientation indexing	x	●	●	x
Synchronous tap control	Standard synchronous tap	● (Note 3)	●	●	●(Note 3)
	Synchronous tap after zero point return	x	●	●	x
Spindle synchronous control	Without phase alignment function	● (Note 2)	●	●	●(Note 2)
	With phase alignment function	x	●	●	x
C-axis control	C-axis control	x	●	x	x

(Note 1) ● :Control possible
x :Control not possible

(Note 2) Control not possible when connected with the V-belt.

(Note 3) Control not possible when connected with other than the gears.

(Note 4) Orientation is carried out after the spindle is stopped when a proximity switch is used.
As for 2-axis spindle drive unit, setting is available only for one of the axes.

(3) Cautions for connecting the spindle end with an OSE-1024 encoder

[1] Confirm that the gear ratio (pulley ratio) of the spindle end to the encoder is 1:1.

[2] Use a timing belt when connecting by a belt.

Spindle side ABZ pulse output encoder (OSE-1024 Series)

When a spindle and motor are connected with a V-belt, or connected with a gear ratio other than 1:1, use this spindle side encoder to detect the position and speed of the spindle. Also use this encoder when orientation control and synchronous tap control, etc are executed under the above conditions.

(1) Specifications

Encoder type		OSE-1024-3-15-68	OSE-1024-3-15-68-8
Mechanical characteristics for rotation	Inertia	0.1×10^{-4}kgm^2 or less	0.1×10^{-4}kgm^2 or less
	Shaft friction torque	0.98Nm or less	0.98Nm or less
	Shaft angle acceleration	10^4rad/s^2 or less	10^4rad/s^2 or less
	Tolerable continuous rotation speed	6000 r/min	8000 r/min
Mechanical configuration	Bearing maximum non-lubrication time	20000h/6000r/min	20000h/8000r/min
	Shaft run-out (position 15mm from end)	0.02mm or less	0.02mm or less
	Tolerable load (thrust direction/radial direction)	10kg/20kg Half of value during operation	10kg/20kg Half of value during operation
	Mass	1.5kg	1.5kg
	Degree of protection	IP54	
	Squareness of flange to shaft	0.05mm or less	
	Flange matching eccentricity	0.05mm or less	
Working environment	Ambient temperature range	-5°C to +55°C	
	Storage temperature range	-20°C to +85°C	
	Humidity	95%Ph	
	Vibration resistance	5 to 50Hz, total vibration width 1.5mm, each shaft for 30min.	
	Impact resistance	294.20m/s^2 (30G)	

(Note) Confirm that the gear ratio (pulley ratio) of the spindle end to the encoder is 1:1.

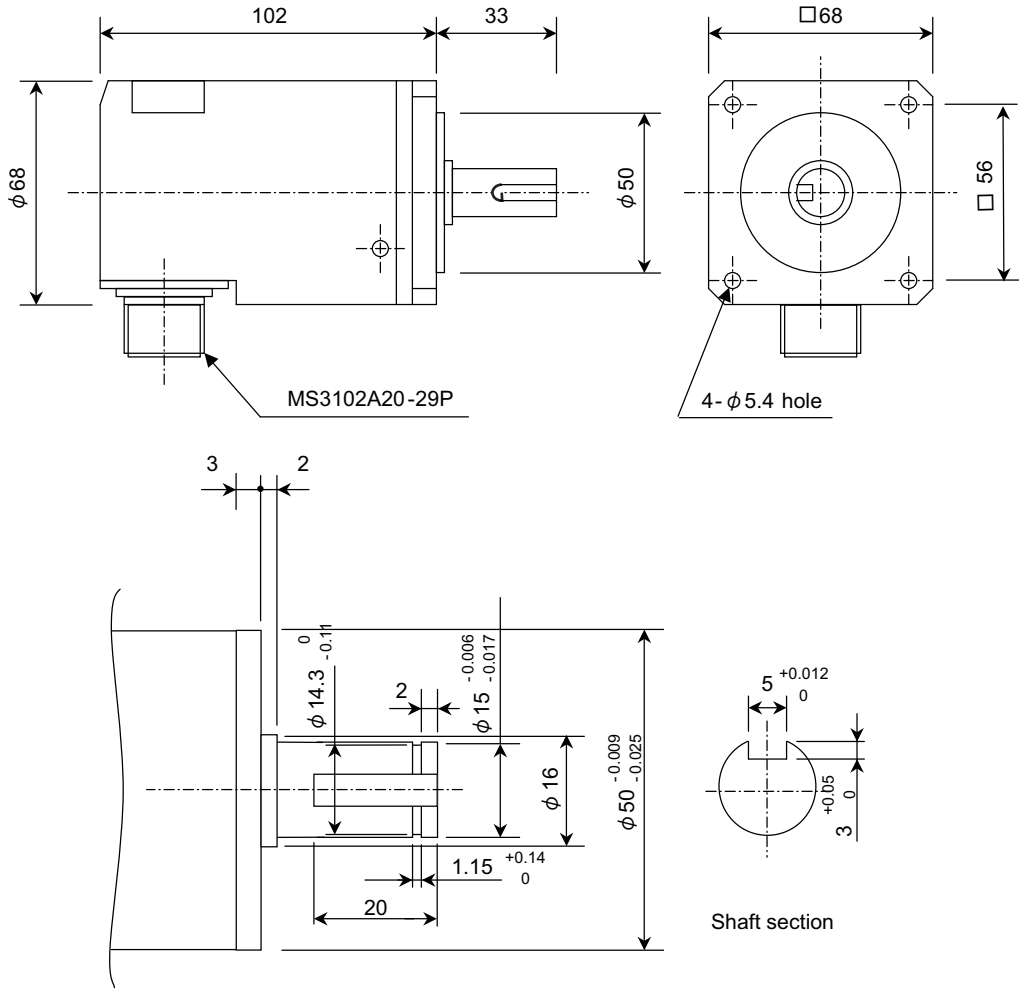
(2) Detection signals

Signal name	Number of detection pulses
A, B phase	1024p/rev
Z phase	1p/rev

Connector pin layout

Pin	Function	Pin	Function
A	A+ signal	K	0V
B	Z+ signal	L	-
C	B+ signal	M	-
D	-	N	A- signal
E	Case earth	P	Z- signal
F	-	R	B- signal
G	-	S	-
H	+5V	T	-
J	-		

(3) Outline dimension drawings



Spindle side encoder (OSE-1024-3-15-68, OSE-1024-3-15-68-8)

Optical communication repeater unit (FCU7-EX022)

When the distance of the optical communication cable between NC control unit and drive unit is over 30m (M700V/M70V/E70 Series: maximum 30m, M700/M70/C70 Series: maximum 20m), the communication can be performed by relaying the optical signal.
Using up to two units, relay of the total length of up to 90m can be performed.

<Product features>

(a) When the distance of the optical communication cable between NC control unit and drive unit is over 30m, the communication can be performed by relaying the optical signal.
(b) The relay between NC control unit and drive unit can be performed for up to two channels.
(c) If the distance between NC control unit and drive unit is even within 30m, the cable can be divided by the relay in transporting the machine.
(d) Same mounting dimension as the remote I/O unit (DX unit).

CAUTION ! This unit can not be used between drive units.

(1) Specifications

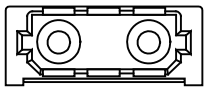
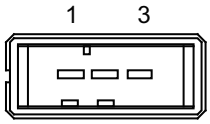
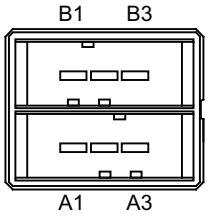
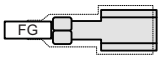
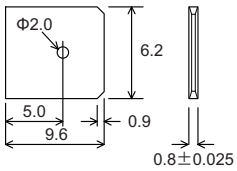
Item			FCU7-EX022
24VDC input	Input voltage		24V±10% (21.6V to 26.4V)
	Inrush current		35A
	Power consumption		10W
	Consumption current		0.4A
Optical interface	Channel number		2 channels
	Connectable number		Maximum 2
Environment	Ambient temperature	Operation	0°C to +55°C
		Storage	-20°C to +60°C
	Ambient humidity	Operation (long term)	+10%RH to +75%RH (with no dew condensation)
		Operation (short term)	+10%RH to +95%RH (with no dew condensation. Short term is within about one month.)
		Storage	+10%RH to +75%RH (with no dew condensation)
	Vibration	Operation	4.9m/s^2
		Transportation	34.3m/s^2
	Impact resistance	Operation	29.4m/s^2
	Atmosphere		No corrosive gas, oil mist, or dust
Dimension	Dimension		(depth)135mm × (width)40mm × (height)168mm
	Mounting method		Screw cramp with M5 2 screw cramps
Mass			0.42kg

(2) Explanation of connectors

Connector name	Application	Remarks
OPT1IN, OPT1OUT, OPT2IN, OPT2OUT	Optical connector	
DCIN	24VDC Power connector	
DCOUT	24VDC/ Power OFF detection output connector	Relays the PD25/27 output to NC control unit.
ACFAIL	Power OFF detection connector	Relays the power OFF detection signal (ACFAIL) when sharing 24V power from PD25/PD27 for NC control unit and optical communication repeater unit. It will not be used when dedicated general-purpose power supply for optical communication repeater unit is prepared.
FG	FG Faston terminal	

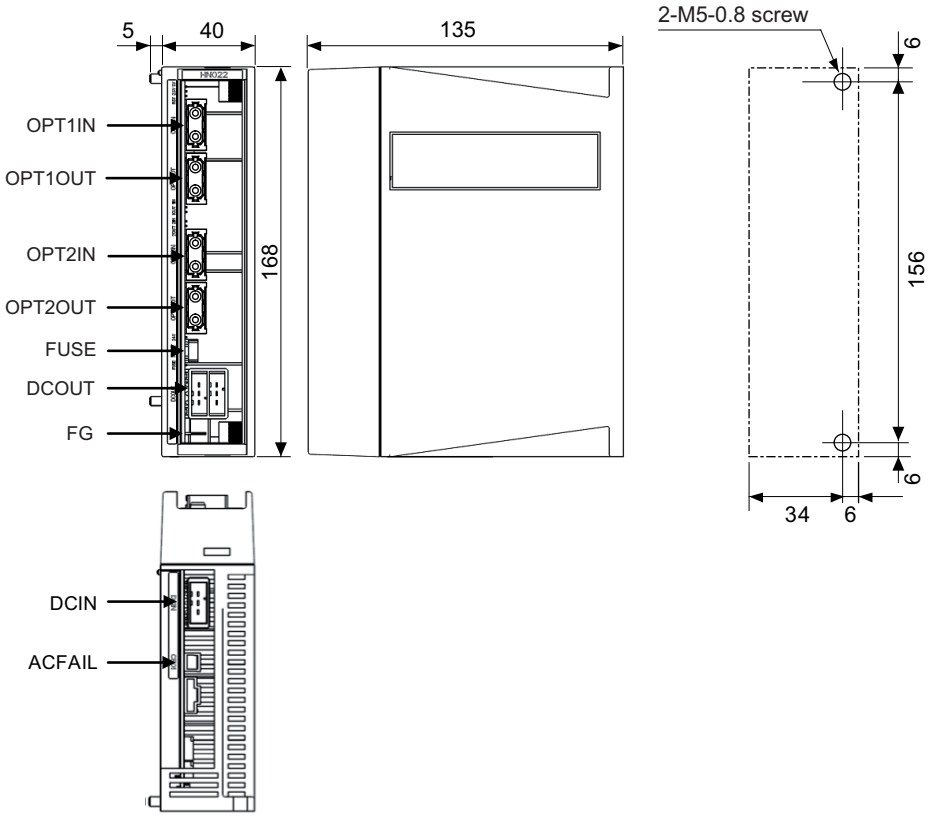
DCIN		DCOUT				ACFAIL	
Pin No.	Name	Pin No.	Name	Pin No.	Name	Pin No.	Name
1	24VDC	A1	ACFAIL	B1	24VDC	1	COM
2	0V (RG)	A2	COM	B2	0V (RG)	2	ACFAIL
3	FG	A3	NC	B3	FG		

< Connector pin layout >

Optical communication I/F (OPT1IN, OPT1OUT, OPT2IN, OPT2OUT)	DC24V input (DCIN)	DC24V output (DCOUT)	Power OFF input ACFAIL (Terminal name:CF01)	FG terminal (FG)
				
<Cable side connector type> (PCF type) Connector: CF-2D101-S Recommended manufacturer: Japan Aviation Electronics (POF type) Connector: PF-2D101 Recommended manufacturer: Japan Aviation Electronics	<PCB side connector type> Connector: 2-178293-5 Recommended manufacturer: Tyco Electronics <Cable side connector type> Connector: 2-178288-3 Contact: 1-175218-5 Recommended manufacturer: Tyco Electronics	<PCB side connector type> Connector: 3-178137-5 Recommended manufacturer: Tyco Electronics <Cable side connector type> Connector: 2-178127-6 Contact: 1-175218-5 Recommended manufacturer: Tyco Electronics	<PCB side connector type> Connector: 53103-0230 Recommended manufacturer: MOLEX <Cable side connector type> Connector: 005057-9402 Contact: 0016020103 Recommended manufacturer: MOLEX	<Cable side faston terminal type name> Type name: 175022-1 (For AWG20-14 250 series) Recommended manufacturer: Tyco Electronics Terminal protection tube: 174817-2 (Yellow)  Unit side tab terminal shape (Note) The faston terminal "175022-1" of the cable side is a simple lock type. Make sure to insert until the simple lock pin is in the Φsecond hole. Firmly press the simple lock release tab when unplugging it.

(3) Outline dimension drawings

[Unit: mm]



DC connection bar

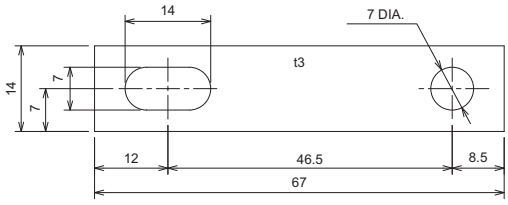
When connecting a large capacity drive unit with L+L- terminal of power supply unit, DC connection bar is required. In use of the following large capacity drive units, use a dedicated DC connection bar. The DC connection bar to be used depends on the connected power supply, so make a selection according to the following table.

Large capacity drive unit	Power supply unit	Required connection bar
MDS-DH-SP-200 MDS-DH-SP-320 MDS-DH-SP-480	MDS-DH-CV-550 MDS-DH-CV-750	DH-BAR-A0606 (Two-parts set)
MDS-DH-V1-200 MDS-DH-SP-200 MDS-DH-SP-320	MDS-DH-CV-300 MDS-DH-CV-370 MDS-DH-CV-450	DH-BAR-B0606
MDS-DH-V1-200	MDS-DH-CV-185	DH-BAR-C0606

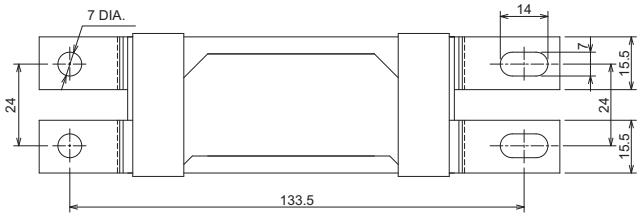
(1) Outline dimension drawings

[Unit:mm]

DH-BAR-A0606

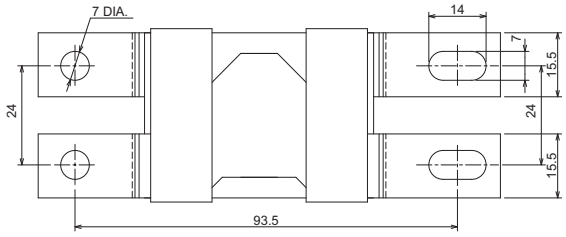


DH-BAR-B0606



(Note) DH-BAR-A0606 is a set of two DC connection bars.

DH-BAR-C0606



POINT Always install a large capacity drive unit in the left side of power supply unit, and connect with DC connection bar.

Revision History

Date of revision	Manual No.	Revision details
Sep. 2007	IB(NA)1500273-C	First edition created.
Mar. 2008	IB(NA)1500273-D (provisional version)	- Descriptions related to ”MDS-D-SVJ3/SPJ3 series” were added. - ”Built-in spindle series” was added. - ”Regenerative option” was added. - Miswrite was corrected.
Jul. 2009	IB(NA)1500273-D	- Descriptions related to ”MDS-DM series" was added. - Spindle drive unit ”MDS-D-SP2 series” was added. - Servo drive unit MDS-D-V2-160160W and MDS-DH-V2-8080W were added. - Servo motor HF224, HF123, HF223, HF303, HF142, HF302 and HF-KP13 were added. - Spindle motors ”SJ-V series” (25 motors) were added. - Miswrite was corrected.
Mar. 2010	IB(NA)1500273-E	- Spindle motor's type name ”SJ-2B4B01T” was changed to ”SJ-2B4B03T”. - ”Dynamic brake unit” was revised. - Miswrite was corrected.
Jun. 2010	IB(NA)1500273-F	- Compatible drive unit for servo motor HF-KP73 was revised. - Cautions were added to "Encoder for Spindle motor". - Outline dimension drawings for servo drive unit MDS-DH-V1-160W were revised. - Outline dimension drawings for spindle drive unit MDS-DH-SP-160 were revised. - Miswrite was corrected.
Oct. 2010	IB(NA)1500273-G	- "System configuration" and "Explanation of type" were revised. - Descriptions related to "Spindle motor (SJ-D and SJ-DJ Series)" were added. - Descriptions related to "Tool spindle motor" were added. - Descriptions related to MDS-DM-SPV2F/SPV3F were added to "Multi axis integrated drive unit". - Spindle drive unit MDS-D-SP2-4040S and MDS-D-SP2-16080S were added. - Descriptions related to MDS-BTBOX-36 were added to "Battery". - ”Regenerative option” was revised. - ”Optical communication repeater unit” was added. - ”Scale interface unit (MDS-EX-SR)” was added. - Miswrite was corrected.
Mar. 2011	IB(NA)1500273-H	- "System configuration" and "Explanation of type" were revised. - MDS-D-V2-160160W was added as the compatible drive unit for the servo motors, HF354, HF453, HP354 and HP454. - "Protective structure" and "Protection method" are replaced by "Degree of protection" - "Armature insulation class" and "Insulation" are replaced by "Heat-resistant class". - Output characteristics in "Spindle motor" was revised. - "Built-in AC spindle motor" was replaced by "Built-in spindle motor" and was overall revised. - "Torque characteristics" in "Tool spindle motor HF series" are revised. - Outline dimension drawings for the spindle drive unit MDS-D-SP-200 were revised. - Output rated voltages of 200V system power supply unit were revised. - MDS-DH-V2-8080W was added as the compatible drive unit for the servo motors, HF-H354, HF-H453, HP-H354, and HP-H454. - Tolerable voltage fluctuation of 400V system drive unit and power supply unit were revised. - Miswrite was corrected.

Date of revision	Manual No.	Revision details
Sep. 2011	IB(NA)1500273-J	- Descriptions related to the unit type followed by "NA" of MDS-D-SVJ3/SPJ3 Series were added. - Servo motor type in "Explanation of type" was revised. - "Combination with spindle drive unit" is added to "Tool spindle motor type" - Outline dimension drawings of the high-speed series motors in "Spindle motor" were revised and motors with standard legs were deleted. - The form to describe the nominal maximum current and rated current was changed. - The battery continuous backup time of ER6V-C119B and MDS-A-BT- □ were revised. - "MDS-D-SVJ3 Series" was added to the system configuration in MDS-BTBOX-36. - Descriptions related to the notes in "Encoder for Spindle motor" were revised. - Descriptions related to the connectors in "Optical communication repeater unit (FCU7-EX022)" were revised. - Miswrite was corrected.
Mar. 2012	IB(NA)1500273-K	- "Handling of our product" was added. - "HF*-A74" and "HP*-A74" were replaced by "-A74N". - Descriptions related to MDS-DM-SPV3F-200120 were deleted. - Resolution of encoder for tool spindle motor was changed to 260,000 p/rev. - "Combination with spindle drive unit" in "Tool spindle motor type" was revised. - Overload protection characteristics for HF105, HF104, HF204, HF354, HP54, HP104, HP903, HP1103, HF-H104, HP-H54, HP-H903, and HP-H1103 were revised. - Input voltage for SJ-V2.2-01T, SJ-V3.7-01T, SJ-V5.5-01T, and SJ-V5.5-01ZT were corrected to "Single-phase". - Specifications for 2-axis type were added to compatible drive unit in "Tool spindle motor". - "5V power supply capacity:0.35A" were added to the "Description" for CN2,3 encoder connection connector in Servo/Multi axis integrated/Spindle drive unit of MDS-D/DH/DM. - "OSA105-ET2" was replaced by "OSA105ET2A". - "OSA166-ET2" was replaced by "OSA166ET2NA". - "Cell battery (ER6V-C119B)", "Battery box (MDS-BTBOX-36)" were revised. - Descriptions related to the connectors in "Optical communication repeater unit (FCU7-EX022)" were revised. - "DC connection bar" was revised. - "Spindle motor type" for 400V system was revised. - Miswrite was corrected.
Sep. 2012	IB(NA)1500273-L	- "System configuration" and "Explanation of type" were revised. - Descriptions related to the battery unit "MDS-A-BT" were deleted. - The description for heat-resistant class was changed. - A caution for the compatible drive unit is added to specifications related to motors. - Specification of MDS-DM-SPV3F-200120 was added to the servo motors, HF354 and HF453. - "(Note)" was added to the outline dimension drawings of HF-KP13 in "Servomoter". - "MDS-DM-SPV3F-200120" is added to "Multi axis integrated drive unit" - Descriptions related to the TE2 of MDS-D/DH-CV-550 and MDS-DH-CV-750 in "Power supply unit" were revised. - Miswrite was corrected.
Apr. 2013	IB(NA)1500273-M	- "Explanation of type" was revised. - Cooling fan input voltage of SJ-V30-02ZT, SJ-VL2.2-02ZT, SJ-V3.7-02ZT, SJ-V30-02ZT, SJ-VL11-05FZT-S01, SJ-VL11-10FZT and SJ-VL11-10FZT in 200V system "Spindle motor" was corrected to "Single-phase". - Outline dimension drawings for the tool spindle motor HF-SP406JKW09 were revised.

Date of revision	Manual No.	Revision details
Apr. 2013	IB(NA)1500273-M	- Outline dimension drawings for FCUA-RB55 and FCUA-RB75/2 in "Regenerative option" were revised. - Degree of protection was added to "Spindle side ABZ pulse output encoder (OSE-1024 Series)". - Cooling fan input voltage of SJ-4-V7.5-12T and SJ-4-V11-18T in 400V system "Spindle motor" were corrected to "3-phase". - Miswrite was corrected.
Apr. 2017	IB(NA)1500273-N	- The words "detector" were replaced by "encoder". - Direct-drive motor and linear servo motor were added. - "Explanation of type" was revised. - Rated current, stall current, maximum current, and mass of servo motor and tool spindle motor were revised. - Max. deceleration torque of dynamic brake of HF354 was revised. - Specifications items and notes for spindle motor and built-in spindle motor were added. - Inertia of SJ-V2.2-01T, SJ-V11-09T, and SJ-V15-03T were revised. - The following spindle motors were deleted. SJ-V5.5-01T,SJ-V7.5-01T,SJ-V11-01T,SJ-V15-01T,SJ-V18.5-01T, SJ-V22-01T,SJ-V26-01T,SJ-V37-01T,SJ-V45-01T,SJ-V55-01T, SJ-V7.5-03ZT,SJ-4-V11-18T,SJ-4-V7.5-13ZT,SJ-4-V11-22ZT, SJ-4-V11-23ZT,SJ-4-V22-18ZT,SJ-4-V30-15ZT - SJ-VL2.2-02ZT was changed to low-inertia specifications. - Cooling fan maximum power consumption of the following spindle motors were revised. SJ-V7.5-01ZT,SJ-V7.5-03ZT,SJ-V11-13ZT,SJ-V15-01ZT,SJ-V15-09ZT, SJ-V18.5-01ZT,SJ-V18.5-04ZT,SJ-V22-01ZT,SJ-V22-04ZT, SJ-V15-03T,SJ-V18.5-03T,SJ-VL11-07ZT,SJ-VL11-07ZT - The specifications of following spindle motor is changed to normal specifications. SJ-V3.7-02ZT,SJ-V11-06ZT,SJ-V11-08ZT,SJ-V22-06ZT,SJ-V30-02ZT SJ-4-V3.7-05ZT,SJ-4-V7.5-13ZT,SJ-4-V11-22ZT,SJ-4-V11-23ZT, SJ-4-V22-18ZT,SJ-4-V30-15ZT - Specifications and output characteristics of SJ-V22-06ZT was revised. - High-speed series SJ-V18.5-04ZT was deleted. - Tolerable radial load, cooling fan input voltage, and mass of SJ-V30-02ZT were revised. - Tolerable radial load of SJ-VL11-05FZT-S01 was revised. - Output current, input current, and recommended wire of servo drive unit, multi axis integrated drive unit, spindle drive unit and power supply unit were revised. - Specifications items for power supply unit were added. - Compatible contactors for the following power supply units were revised. MDS-D-CV-37,MDS-D-CV-75,MDS-D-CV-110,MDS-D-CV-185, MDS-D-CV-300 MDS-DH-CV-75,MDS-DH-CV-110,MDS-DH-CV-185,MDS-DH-CV-300, MDS-DH-CV-370,MDS-DH-CV-450,MDS-DH-CV-550 - SJ-4-V37-04T was replaced by SJ-4-V37-04ZT. - "Dynamic brake unit (MDS-D-DBU)" was revised. - "Battery" was revised. - "Encoder for spindle motor" was revised. - "Optical communication repeater unit (FCU7-EX022)" was revised. - Miswrite was corrected.

Notice

Every effort has been made to keep up with software and hardware revisions in the contents described in this manual. However, please understand that in some unavoidable cases simultaneous revision is not possible.
Please contact your Mitsubishi Electric dealer with any questions or comments regarding the use of this product.

Duplication Prohibited

MITSUBISHI CNC
DRIVE SYSTEM

MITSUBISHI ELECTRIC CORPORATION
HEAD OFFICE : TOKYO BLDG.,2-7-3 MARUNOUCHI,CHIYODA-KU,TOKYO 100-8310,JAPAN

MODEL	MITSUBISHI CNC DRIVE SYSTEM
MODEL CODE	100-005
Manual No.	IB-1500273

IB(NA)1500273(ENG)-N(1704)MEE
Made in JAPAN